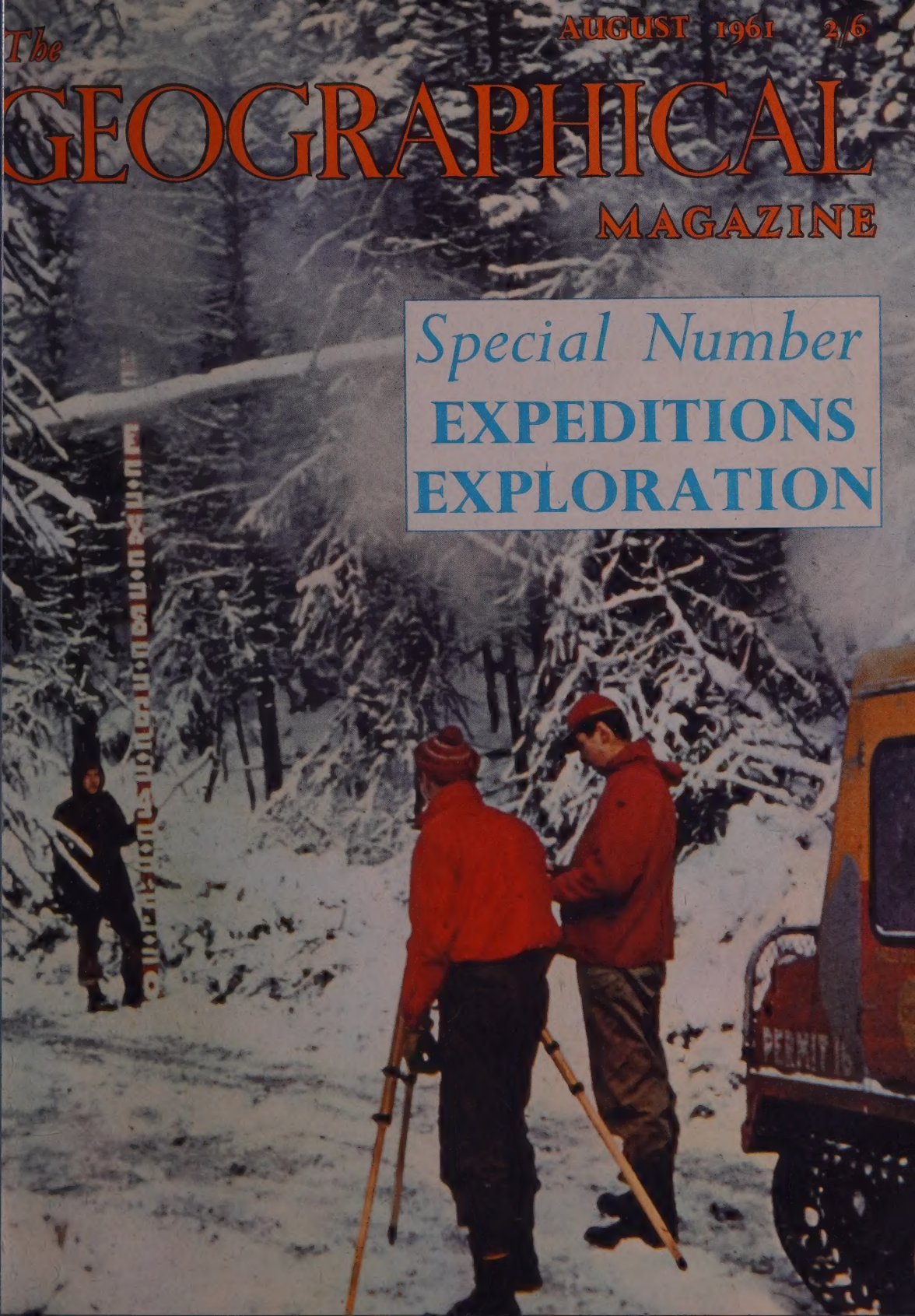


The

AUGUST 1961 2/6

GEOGRAPHICAL MAGAZINE

Special Number
**EXPEDITIONS
EXPLORATION**





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This Special Number of the Magazine is devoted to the planning of expeditions, large and small, public and private. The work of getting an expedition into the field is like the submerged eight-ninths of an iceberg and one scarcely ever hears about it. As a start, a distinguished geographer here describes what was involved in mounting an important expedition 400 years ago

Drake's Secret Voyage

The Circumnavigation of 1577-80

by PROFESSOR E. G. R. TAYLOR

THERE are three prerequisites before an expedition for exploration or discovery can be launched—an Idea, a Man, and a Patron who accepts both. Christopher Columbus was neither the first nor the last to find out that the third—the moneyed backer—is the hardest to get hold of. For not only has he to be persuaded that the Idea is sound, but also that it is technically possible. And again, that it is worth pursuing in terms of the resources demanded. Over and above all this, he must be convinced that the Man is indeed the individual capable of carrying it through.

The Idea that one could reach the East by sailing west from Spain had been bandied about since the days of Aristotle. Very few became aware that the New Navigation, as developed by the Portuguese during the 15th century, had rendered it a practical possibility. Fewer still were ready to believe that an unknown Ligurian of inferior birth was the Man able to carry out this Idea. Columbus hung about the Courts of Portugal and Spain for ten years or more before he found his Patron in Queen Isabella.

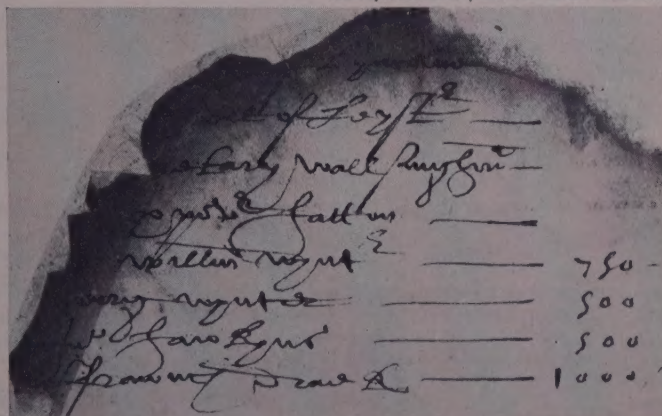
More than half a century later an Idea began to haunt the minds of Englishmen, the Idea of the Pacific Ocean. After all, what right had the Pope to part the whole world's discoveries between the Spaniards and the Portuguese? No-one had yet been to Cathay, or to Locac, the Land of Gold, which were described by Marco Polo. Dr John Dee, the great mathematician, believed that Locac was Solomon's Ophir, specially reserved by Providence for the British Queen Elizabeth (he would not say English, for

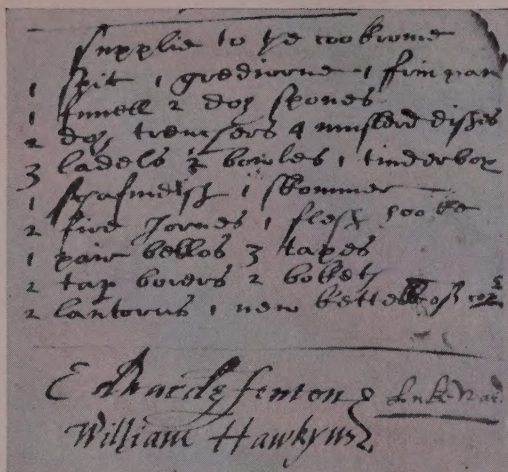
he was a Welshman). The latest map from the Low Countries showed that the coast of the unknown Terra Australis ran from the farther exit of Magellan's Strait all the way to Locac. Why not go and look for it?

Not only was this Idea abroad, but the Man was not far to seek. Francis Drake, bred to the sea from his youth, and an earl's godson, had just made a lucky (if illegal) strike in the Spanish Indies. He would put down £1000 towards the exploration of Terra Australis. He would also lend his little *Bark Francis*, if the Queen would provide one of her naval vessels lying idle in the Medway. Drake's old leader, John Hawkins, was ready with another £500, and he had the ear of the Navy Board through his elderly father-in-law, Gonson, for whom he deputed. Two officers of the Board, the brothers Sir William and Mr George Winter, promised to put up £750 and £500 respectively. The Lord High Admiral, Clinton, embraced the project, although without stating

This burnt corner of the draft plan of Drake's voyage lists the proposers. First is the Lord High Admiral, Edward Clinton, Earl of Lincoln. The Earl of Leicester and Secretary Walsingham follow

All reproductions from the British Museum





The list of articles necessary for a ship's cook-room—from the spit and gridiron to lanterns and tinder-box—was signed in 1582 by Captain Fenton, William Hawkins, his young lieutenant, and Captain Luke Ward

his subscription. He was, of course, a Privy Councillor, and two other members of that august body joined the group—the Secretary of State, Sir Francis Walsingham, and the powerful Earl of Leicester. Besides these seven names, another appears on the proposal list—perhaps the most important of all. This was Master Christopher Hatton, then the favourite courtier of Queen Elizabeth. Her consent was indispensable.

The year was 1577, and since such an expedition must go off in secret the projectors had already procured a licence from the Grand Turk to make a trading voyage to Alexandria. Under cover of this licence they proposed to sign on a crew and leave port. These details are among the few that can be learned from the burnt fragment of a letter which they sent to Lord Burghley. It urged him to get a quick reply from the Queen, or the opportunity would be lost. No other document survives describing the preparations for Drake's famous voyage of circumnavigation, but the procedure can be inferred from contemporary practice, and from subsequent events.

The Queen gave her gracious assent, prompted perhaps by Hatton. He had been primed with information by Dr Dee, in whom she placed great faith. Dee was a notable expert in the theory of navigation and in cosmography. He cherished the possibility of building a British overseas empire, and pressed the idea on his friends. Drake was bidden to a royal audience, and so was able to reveal to Elizabeth much more ambitious plans than the mere reconnaissance of

Terra Australis, or even a run to the Spice Islands.

He was aware of the state of affairs on the far side of the Isthmus of Darien. There the Spanish ships moved about unarmed and unsuspecting as though the Pacific Ocean was their private lake. And he had long been burning to revenge himself upon the Spaniards for an outrage they had committed upon John Hawkins in 1568. He had himself been present, and had played a somewhat ignoble part. Once he was in the Pacific, whence the treasure of Peru streamed into Spain, he could work his will. And so it happened that in addition to Letters Patent for a voyage of discovery, Elizabeth gave Drake Letters of Marque. These permitted him to exact reprisals legally for the wrong done by Spain although the two countries remained at peace. That he possessed them was to be kept secret from the cautious Lord Burghley, for they would create bad blood between the nations.

Drake was now in his mid-thirties. He knew the sea, he knew the Spaniard, he knew what he wanted, he knew how to get it without bloodshed. The Idea, the Man and the Patron were all conjoined.

The Queen, however, did not lend her ship *Swallow* as had been requested. The two Winters bought a new ship of 80 tons, the *Elizabeth*, and fitted her out in London River; for Sir William lived at Deptford. George's son John was appointed Captain, and the Master was a Rochester man. When he found himself in Magellan's dismal Strait, he said that had he known that this was the Alexandria he signed on for he had rather have been whipped round the town at the cart's tail—the penalty for jumping ship!

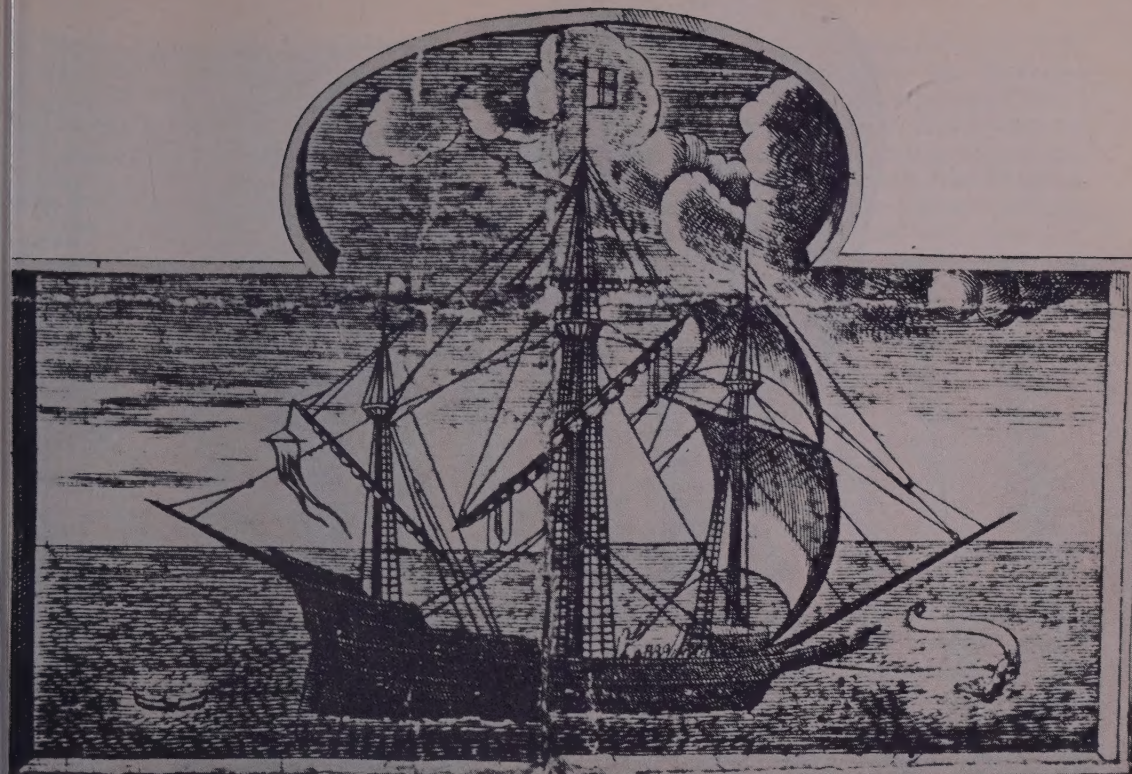
Down at Plymouth, Drake prepared the *Pelican*, a local ship which he was to rename the *Golden Hind*. The *Marigold* of 30 tons was also equipped, but of her we know no more, for she foundered with all hands in the Pacific. It was decided not to take the *Bark Francis*, but instead there was a small supply ship intended to be broken up when her cargo was consumed. For a voyage along strange shores a most important adjunct was the pinnace, a boat of ten or twelve tons stepping a single mast, which could nose into rivers, sound out channels, and find good anchorages for the larger ships. Drake ordered four to be built, dismantled, and carried piece-meal in the hold of the *Golden Hind*. He found a use for them all—in particular for putting ashore the crews of ships that he rifled and sent adrift, and in one case for marooning some of his own men for whom he felt no need. And when he

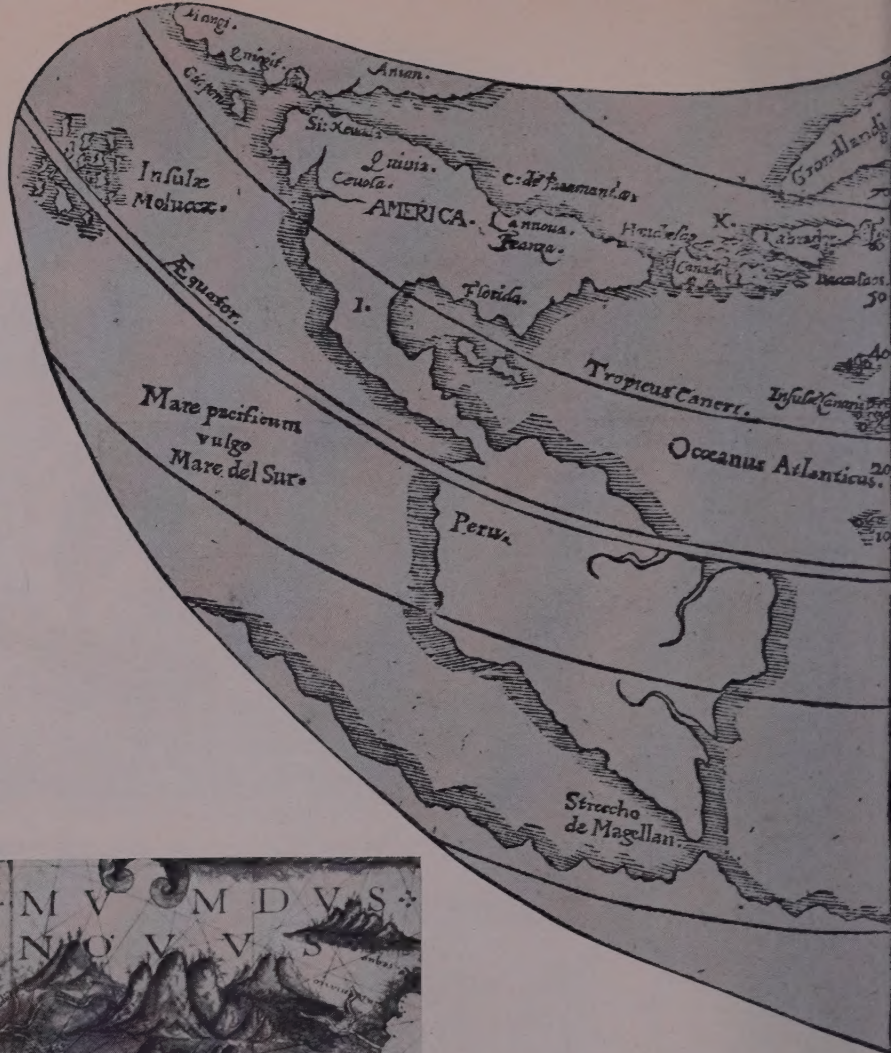


The frontispiece to the book Dr John Dee dedicated to Christopher Hatton: it shows Queen Elizabeth summoned from Heaven to take the helm of the ship *Europe*. Her three principal ministers, who were Burghley, Leicester and Walsingham, form the crew, and the Royal Arms are on the rudder. A fleet of ships awaits her orders. Only Dee, astrologer as well as mathematician, could have explained the symbolism of the sky and of the goddess holding out a laurel crown. The *Europe* has a strong likeness to Drake's ship, the *Golden Hind*



(Above) A Dutch engraver pictured Drake after his return from his voyage around the globe, and mapped his route below the portrait. A little later this engraver also drew the *Golden Hind* (opposite, top) under a great map of the world. Amongst the chief members of a ship's crew (opposite, bottom) are the captain, on the left in his sea-gown with his page and man-servant; and on the right the bo'sun with dangling whistle; behind him the carpenter and an able seaman





No two maps of America and the Pacific were alike when Drake sailed. They were largely conjectural. For example, the sketch map (above), drawn by Sir Humphrey Gilbert from an original which suggested an easy north-west passage to the Moluccas, also showed the 'unknown land' running up from the Strait of Magellan. A sailor's chart (left) of Magellan's Strait, drawn by Vaz Dourado, breaks off abruptly where a shore has not been visited and roughly charted. (Opposite) A cartographer's conception of the Western Hemisphere, mainly drawn from books. Land closes the North Pacific and links America and Asia, while an imaginary strait leads through Central America; and the unknown southern land is here reshaped

reached Peru he sailed himself for several days in one of them, keeping inshore to gain information while the *Golden Hind* followed a safer course five or six miles out at sea.

Once the ships were bought, the first operation was to sheath them against teredo worm. This was done by nailing thin planks over the hull, work which required a skilled shipwright. Both owners would employ a competent man to oversee the workmen, to inventory the ship and to check the lading, while a well-educated man was required for the correspondence and the accounts. In addition the principals would appoint a small committee among themselves and their consultants to exercise general control. Such was the organization recorded in respect of Frobisher's voyages, and the 'follow up' voyage to Drake's in 1582, and it may be safely inferred that the procedure was the same in 1577.

The money, £2750, put down by the first four projectors, as listed in the letter to Burghley, was more than half that required for all the preparations. This may sound surprising, but we have detailed accounts for a comparable voyage to the Arctic in the same year, which was fitted out for under £5000. The tonnage of Frobisher's three ships was 240, that of Drake's 220, although the latter were the more heavily manned, a total of

164 men against 115. Frobisher's ship, the *Ayde*, destined for Meta Incognita, the 'Unknown Bourne' of the North-West Passage, was a Queen's ship, and after necessary repairs and replacements she cost £1200. This included her rigging, ordnance and munitions. A ship of 120 tons, fully furnished, was reckoned at £800, while a decked pinnace, with her tackle and furniture, cost about £20. Sailors' wages averaged £1 a month, with two months paid in advance by way of 'imprest'. Their food worked out at about 13s. to 15s. a month, and a weekly allowance drawn up for Frobisher's men ran as follows:

Biscuit bread for 7 days, 7 lb; Beer at 3 quarts a day for 7 days, 5 gallons and a quart; Beef for 4 days in the week, 4 lb; Stockfish for 3 days, one fish and a half; Cheese for 3 days in the week, $\frac{3}{4}$ lb; Butter for 3 days in the week, $\frac{1}{2}$ lb; Pease for 7 days, 2 quarts; Sweet oil, a pint for a month; Vinegar, a pint for a month; Salt, half a pint for a month; Mustard seed, a pint for a month.

Usually pork was carried as well as beef, and a ship provisioned at Plymouth would lay in cider as well as beer. Barrels of honey appear on some lists, and rice might be purchased in quantity en route. Almonds, raisins, prunes and orange marmalade appeared on the Captain's table, and might be served to the sick. But although the

surgeon carried a medicine chest the panaceas of the day were *aqua vitae* (strong brandy), bleeding and purgatives. Fishing gear was part of the ship's furniture, so that this grim diet was supplemented by fresh fish, while wherever a landing was made the men glutted themselves with fruit and vegetables. Quantities of bay salt were taken to salt down any fresh meat procurable, besides barrel staves and hoops. Pitch for caulking and charcoal for braziers were among other supplies.

Ship's biscuit and meal, besides other provisions in current use, were stowed in the bread-room under lock and key by the steward. And woe betide the cabin-boy who slipped in to filch a lump of cheese. He was put in the bilboes or ducked from the yard-arm.

The gunners' room, under the master-gunner, had to be furnished, for the prevalence of piracy made it essential for a ship (even if only for



Alexandria) to go armed. Drake had fifteen to eighteen pieces of ordnance, mounted on gun-carriages, besides the arquebuses with which he armed his men for safety's sake when they went ashore. Gunpowder, shot, lead and moulds, tinder boxes, 'fireworks', and all the small arms and tools were kept in the gunners' room. The cost (as set out for the *Ayde*) was about £350.

A voyage of discovery involves careful consideration and study of the route to be followed, with attention to possible hazards. The original proposal of a simple reconnaissance of the coast of Terra Australis had been enlarged, not only by Drake's secret plan, but by the determination to visit the Moluccas. This meant (it was supposed) crossing the Pacific and recrossing it on the return voyage, and Drake engaged to solve one of the chief mysteries of that ocean. Was it closed in to the north? Or did the reputed Strait of Anian open out between latitudes 45° and 50° N, easy to reach round the north of America (as Frobisher declared) or round the north of Asia (as Dr Dee believed)? Dee dropped a strong hint of Drake's intention to find out in his *Volume of Great and Rich Discoveries* which he began feverishly to

write and dictate in the spring of 1577. Intended to be the fourth part of his great work on navigation it was never published, although the introductory volume (dedicated to Christopher Hatton) appeared in August of that year. Drake did, in fact, sail as far as 48° N, when it became clear that the coast of North America did not swing away north-east as the latest map showed.

By that time, however, he knew that he could not return by Magellan's Strait, for the enraged Spaniards would be waiting for him. He put into execution his master plan, which was to sail to the East Indies by the Spanish Pacific route, and then on home by the Portuguese route round the Cape of Good Hope. The Portuguese and Spanish pilots carried charts and rutters (route-books), with details of winds, currents, harbours and dangers along the routes on which they worked. Drake systematically seized these, and where it was not convenient to carry along the pilot himself, he held long conferences with him before putting him ashore. He pursued, in fact, the same policy as he did for reprovisioning his ship—help yourself as you go along!

But, of course, just as he made an initial

Details of a 16th-century ship include a rope-ladder dropping to a skiff, the master's cabin in the poop, with a trap-door to the captain's below, and an officer reading the compass-variation



provision of food supplies, so he did of navigating aids. In the spring of 1577 he slipped over to Lisbon and bought a great sea-chart of the world. It was possibly the work of Vaz Dourado, then the most famous chart-maker among the Portuguese, who led the world in this art. It could give no encouragement to the idea of a Terra Australis adjoining Magellan's Strait, for a sea-chart differed from a map in being limited to the interpretation of records actually brought home by pilots and ship-masters. A cartographer, on the other hand, lent weight to theoretical considerations and speculation in drawing his map.

Drake also had a Portuguese pilot-book of 1576 translated for use on his voyage. But the section on the Strait is woefully thin, for no-one had gone through for thirty years. It ran as follows:

Leagues	Degrees	Minutes
From Ponta das Baxas to Porta Cruz	60	Ponta de las Baxas 45° 50'
From p. Cruz to p. S. Julians	17	S. Julians 49° 50'
P. Julians to C. of the Virgins	55	C. of the Virgins 52° 30'
C. of the Virgins to the souther Cape of ye Str. of Magellan ..	44	C. of the Strait..... 53° 30'
From the souther Cape to the mouth of the Strait	47	Mouth of the Strait..... 52° 00'
From the mouth of the Strait to Serra Alta.....	95	Headland of Serra Alta .. 48° 30'

The only aids to navigation provided as part of the ship's furniture were the sounding leads, a couple of compasses and one or more 'running glasses' (i.e. half-hour sand-glasses) for keeping the watch. Masters and pilots had to bring their own cross-staffs and sea-rings (astrolabes) to take the height of sun or star, and would need also an almanac to show the phases of the moon (governing the tides) and a table of the sun's daily declination. We may be sure that a number of Drake's men had the *Regiment for the Sea*, written recently by a Gravesend 'mathematical practitioner' known to the Lord Admiral and Sir W^m Winter. It contained all the necessary directions and tables for navigation, with very explicit rules for finding latitude in the Southern Hemisphere. Drake himself was a skilled navigating officer as well as a practised seaman.

In fitting out their sea-chests Drake and John Winter put in some books for their own reading. Besides the Bible and Prayer-book, Drake had Foxe's *Book of Martyrs* and both had copies of Richard Willes's new *History of Travel*. It contained an English version of Magellan's *Voyage* which Winter read aloud to his crew as they were waiting in the Strait expecting Drake to rejoin them. He said that they 'very well liked' it. It contained a quite horrible account of the symptoms of scurvy and of how Magellan's men were

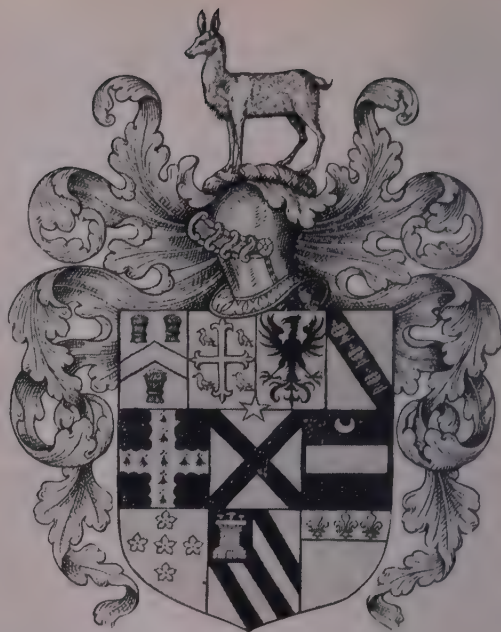
so famished that they chewed the very leathers off the rigging during the long Pacific crossing. The Master, at any rate, insisted on turning for home after Winter had solemnly taken possession of Tierra del Fuego for Queen Elizabeth.

Once home, Winter found himself under arrest for an early episode in his General's 'help yourself' policy—the seizure and rifling of a Portuguese ship bound for Brazil. It had incidentally provided Drake with a very skilled pilot. The cargo included butts of Canary wine (the usual drink of gentlemen aboard ship), canvas, woollen cloth, linen, leather, nails and hardware, all in quantity. Winter pleaded that they had used them of necessity. Mariners reduced to rags were re clothed, and he himself had needed a new doublet and breeches, cloak and gown. The

gown, usually made of heavy frieze, was the sailor's normal extra garment against the weather, although how it could have been worn aloft, or in a gale, is a mystery. The nails (Winter said) had been used to put together a pinnacle, the canvas to fit her with main-, fore- and sprit-sails, besides an awning against the sun.

Canvas, ropes and cables, as well as iron, were articles that gave the most anxiety on a long voyage. When a supply ship was broken up all her iron-work was carefully salvaged. And it was said that a man would not spare cables to his own father were they begged of him at sea. Some provision of spare clothing to be bought by the crew was normally made before a voyage, but men shipping for Alexandria did not expect to go round the world, as in the event more than sixty did.

Once the fitting out of the ships was well advanced and the contracts made with the purveyors of provisions, firewood and beer, it was necessary to consider personnel. For his immediate service Drake chose his boy cousin, John Drake, as page, and a faithful negro from the West Indies as body-servant. He also had a cabin-steward who spoke rather spitefully about him on the return home. As the voyage (quite apart from Drake's secret purpose) promised commercial gain there was keen competition for cabin space,



Handsome Christopher Hatton, the Queen's favourite dancing-partner; his crest, a golden hind

and the complement of 'gentlemen' taken was probably unduly high. Certainly the General was to tell them later on that they must 'haul with the mariners'. They included Thomas Doughty (a soldier and personal friend) with his brother John, young William Hawkins, a nephew of John Hawkins, and one or two whose names (e.g. Chester) suggest City interests. There was also a chaplain to say daily prayers and preach a sermon on Sundays. He found Drake's high-handed procedure hard to swallow.

As regards the crew it was easy to find masters and pilots competent to take the ships as far as West Africa, as well as a reliable master-gunner for a voyage sponsored by the Navy Board. Drake's long experience at sea would enable him to choose the right men for the two most important offices 'before the mast'—those of bo'sun and ship's carpenter. He would also need a blacksmith, cooper, tailor, barber-surgeon and other tradesmen, as well as the ordinary sailors—and a ship's cook. The inclusion of two or three musicians (besides the usual trumpeter and drummer) is a reminder that the amenities proper to a gentleman's way of life were not forgotten. Fine clothes were carried for great occasions. The Great Cabin and the Captain's private cabin were handsomely furnished, while the ship herself, in addition to the flag of St George, had a gay array of pennants which she could run up.

Last, but by no means least, the mounting of a voyage of discovery had to include the assembling of the ship's papers—not only the muster-roll, and the cockets for the Customs officers, but the Queen's Letters Patent permitting the voyage. These gave the Captain-General the authority to represent her person, to deal with foreign princes, to administer justice, and to press a crew and supplies if necessary. In addition Drake had her Letters of Marque, and it was the revelation of this secret to Lord Burghley which is believed to have led to the execution of Thomas Doughty.

Once the ship was on the high seas the General issued his own instructions. They included the password, the mutual signals to be used, and the rendezvous should the fleet be scattered. The fact that Drake named as meeting place lat. 30°S in Chile (where he waited and shot off a heavy piece), or failing that 3°S, makes it plain that he had no intention of sailing direct to the Moluccas from the Strait. He turned to Peru first.

After his departure Dr Dee was called to Windsor to talk to the Queen about Empire. A fortnight later she knighted Christopher Hatton. Dee spoke to him that day. And what about? Surely about the *Golden Hind*. It was the crest above Hatton's coat-of-arms and also the new name of Drake's ship. Was this choice made for services rendered? Or to please the Queen?

The Hills and the Sea

by H. W. TILMAN, D.S.O., M.C.

It is curious to think that in the early years of the present century, when the most fascinating regions of the world, the Himalayan frontier lands, were wide open, the choice spirits who visited them were so few. Would the travellers and mountaineers of today have been equally deaf when opportunity called? For the awakening of interest in the Himalaya is comparatively recent. The Himalayan Club was not founded until 1928 and its first Journal—significantly weak in current mountaineering articles—appeared the next year. Even the first three Everest expeditions of the twenties failed to let loose a flood of attempts on lesser peaks by lesser parties. One notes merely that before then Dr Kellas was climbing in Sikkim and that Freshfield made a journey there; that in Garhwal the names of Longstaff, Meade (of Meade tent fame), Rutledge, crop up momentarily; that two large Italian parties had visited the Karakoram, while that redoubtable couple, Dr and Mrs Workman, worried away at the topography. No doubt, too, several officers of the Survey of India had visited the mountains professionally.

But of the activity one might have expected on the part of those with every opportunity and incentive to explore the Himalaya, namely the British in India, particularly Army officers, one hears little. One bar to Himalayan enterprise is the cost of getting to India; another is a lack of knowledge of the languages and local customs. Neither of these applied. Officers were poorly paid—in 1914 a subaltern got 5s. 7d. a day—but most of them had other means. Yet hundreds of active young men already on the spot, with two or three months' annual leave to be had for the asking, sat on club verandas in hill stations wondering how to spend it, while the aloof white outline of the distant Himalaya visibly and vainly beckoned. One's heart still leaps to think of it. And they did nothing. Or nothing beyond shooting tigers in the jungle, mountain-goats in Kashmir, sticking pigs, or playing polo. A philosopher observing them sharpening their hog spears and tightening their girths while the Himalaya remained unvisited, might have concluded that the higher ranks of the British Army lacked imagination. He might also think that the tactics

and strategy of 1914–18 seemed to confirm it. Luckily the enemy opposite numbers were no better.

Even after the forming of the Himalayan Club in India activity came mainly from here at home and from Germany where there was a strangely violent surge of interest. None of the four Everest expeditions of the thirties, when the tide of interest really began to flow, were private parties, any more than were the several German attempts of the same decade on Nanga Parbat and Kanchenjunga. But Smythe's Kamet venture of 1931 was a private affair and it was his, I think, which showed the way. The Himalaya are now so familiar to so many that one forgets the awe with which we first regarded them. For mere climbers, quite apart from the scale of the mountains themselves, the necessity of employing porters and all the problems facing such an enterprise seemed formidable hindrances. Once the plunge was taken and the first journey accomplished, contacts made in Calcutta and Darjeeling and among the Sherpas, the thing became no more difficult than arranging an Alpine holiday.

Travelling in remote places cannot be done without money. As the Bulgar proverb has it, a man can go nowhere without money, not even to church. For a small-scale affair, a party of friends, say, going out to enjoy a climbing holiday, it seems only reasonable that the immediate beneficiaries should pay; in the thirties this is generally what happened. Nowadays I imagine it is exceptional for a party to pay its own way, though it may pay part of it. While it is true that the costs have trebled themselves, in theory this should be offset by the rise in incomes and salaries. By a convenient arrangement of Providence, that class which has been unlucky in these new economic arrangements—I mean the pensioners—have long ceased to wish to take part in expeditions.

That there are so many more expeditions in the field now than there were in the thirties is no doubt mainly due to the number of sources from which substantial grants may be obtained, a factor which has stimulated the desire to travel and climb in distant places to a greater degree than it has encouraged self-help. Quite soon after

the last war I was startled and amused by the phenomenon of expedition notepaper with printed headings, a device used by the smallest of private parties in their efforts to raise the wind. When begging for trivial sums or a crust of bread one cannot look too seedy, but when asking for large amounts, or for free food and equipment for an expedition, an aura of dignity and prosperity should be assumed. So the organizer of the hopeful party hastens to lay out the first few pounds he gets his hands on in a stock of ornate notepaper with grandiloquent letter-heading. And in order to disguise, or lend a gloss to, the real purpose of the enterprise—which is, reasonably enough, to have an amusing and possibly adventurous holiday—a number of high-sounding scientific aims are proposed.

However, since there are grants to be had we should be happy that there are enough enterprising chaps to apply for them, and no doubt those whose job it is to allot the money make the best of a slightly invidious task. The point I want to make is that the private party which went to the Himalaya in the thirties had no occasion to make a fuss with expedition notepaper and scientific aims. It was responsible only to itself and paid its own way. In those days it was not beyond expectation for a man to have, say, £200 available and to be ready to blow it on a Himalayan holiday. Otherwise, unless lucky enough to be chosen for an Everest party, he had to be content with the Alps. Nowadays no-one seems to have any cash put away, at least not for expeditions. I used to consider it a salutary rule that everyone taking

In the past famous explorers mostly travelled alone with just a few porters, as Mungo Park did

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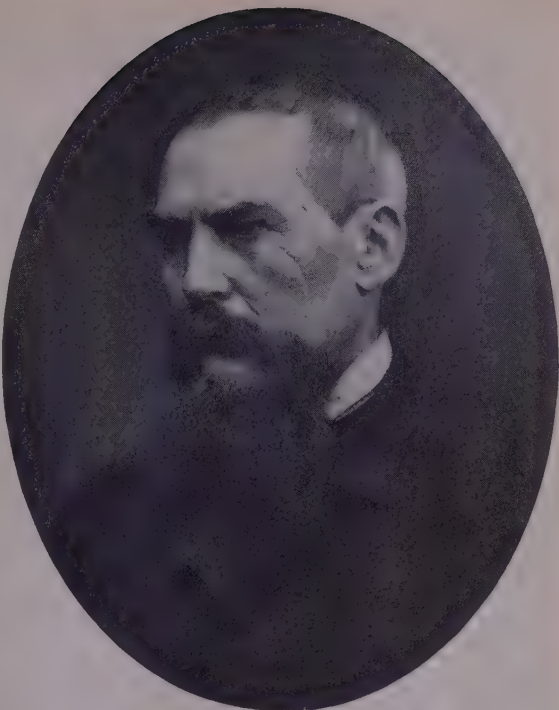


part should contribute to the funds of an expedition—should, in fact, make a considerable sacrifice for the privilege of taking part. Few share this idea now. As the Arab says, the camel driver has his thoughts and the camel he has his. It is rare indeed to find anyone able or willing to contribute anything beyond his services.

Some figures concerning these earlier Himalayan ventures may be of interest. In 1934 when we spent five months in Garhwal, part of it in the so-called Sanctuary surrounding Nanda Devi, Shipton and I spent £140 each, no more than we should have spent by staying at home. We were extravagant, too, for we employed three Sherpas all the time besides engaging local porters when we had to move our base. In those days, by the way, one fought shy of the word 'expedition', the use of which seemed slightly pompous for journeys anywhere except in the Polar regions. Of the 'official' parties, the Everest Reconnaissance of 1935, with seven climbers and fifteen Sherpas, cost about £1500, while the 1938 Everest attempt, also with seven climbers, some thirty Sherpas, and more elaborate tentage, cost £2300. This was about one-fifth of the usual cost of such expeditions, but the general reaction to this seemed to be that we had merely lowered the tone of the thing.

I have not the figures for the Nanda Devi climb of 1936 which was entirely a private affair paid for by the four American and four British climbers who took part. It might seem a large party but all were needed, for we had only eight Sherpas and for once they failed to be of any use on the mountain. About one-third of the whole outlay of a Himalayan expedition goes in transporting the party and its baggage to India, so that with half the party coming from America the cost was increased. A worse complication was that we had applied for permission to attempt Kanchenjunga, Nanda Devi being our second choice, and had therefore two scales of equipment on correspondingly majestic and less majestic lines. It was not until I arrived in India as the advance party that we knew which scale to adopt.

In 1937 Shipton and I had another small private venture to the Karakoram. We included a surveyor and a geologist in the party and I think that under this respectable cloak we obtained a small grant. It entailed a major feat of organization on Shipton's part, for we had to recruit no fewer than 100 porters, or coolies as we haughtily called them in those days, to carry 4000 lb of



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When Sir Richard Burton went in company, with Speke, for instance, the results were not always very happy

atta over an unknown pass of 18,500 feet that had yet to be located. Once over the pass, where we expected to be for several months, we were beyond reach of supplies. A proper picnic it proved, too, arguing, pleading, threatening, bribing every foot of the way until near the top of the pass, where the loads were finally dumped in the snow. We managed the rest ourselves.

We tend to think of a party of one as being on the small side. For mountaineering, of course, it is. But the great travellers, men whose names spring immediately to mind like Mungo Park, Livingstone, Stanley, Burton, Wood, Sven Hedin, Younghusband, all travelled alone—alone, that is to say, as we understand the word, ignoring the hungry horde who plod behind with the loads or carry the great man in his litter. I tried it myself in 1939 for a journey to the Assam Himalaya and it is amazing how simple everything becomes when there is only oneself to consult or arrange for. That, however, was all the gainful experience I got from it, for the three Sherpas and I all went down with a deadly form of malaria only a fortnight out and were lucky in that only one of us died. Thus the Assam Himalaya, with the wonderful peaks of Namcha Barwa and Gyala



(Opposite) Another lone traveller was Livingstone; while H. M. Stanley also sometimes found that the smaller the party the greater was his progress. *(Right)* On his return Stanley brought back a little black slave called Kalulu and the two of them reconstructed a typical scene of their journeys for the benefit of a London photographer. *(Below)* Stanley's portable boat. It could be taken to pieces for carrying



All three illustrations from Radio Times Hulton Picture Library





Early Himalayan climbers, too, went in small parties more often than not. (Left) Dr William Hunter Workman and his wife, Fanny Bullock Workman, 'that unique American couple who pioneered in the Himalaya'. The Doctor was fifty-six and his wife forty-four when this photograph was taken of them on the summit of Mount Lungma (22,568 ft) in 1903; both later broke world altitude records. Their journeys were made and initiated entirely by themselves, though they took with them on their 1903 climb three Italians, and a topographer to map the Chogo Lungma glacier in the Karakorams. (Below) The 1923 Everest Expedition. (Opposite) Shipton and Tilman and the three Sherpas who accompanied them when they climbed Nanda Devi in 1936

By courtesy of the
Royal Geographical Society

Copyright, the Mount Everest Found



Peri facing each other across the Tsangpo gorge, remain, so far as mountaineers go, unvisited.

Very soon after the last war we ran a small private party of four to the Gilgit region, but two of them were Swiss and it was entirely at their instigation. At that time we in England were still stunned, and the Himalaya were part of a world that had died. Moreover, in the prevailing atmosphere of misery for all it seemed indecent to have any money and unspeakably selfish to think of spending it in the Himalaya. When a British party at last started in 1949 it set a new pattern for me. The party of four cost £1300 and most of the money came from trust funds, for it was serious business. It was the first climbing party to visit the Nepal Himalaya and the Nepalese authorities insisted that we bring back some results, in this case by collecting plants and birds and doing geological work. More than anything else the opening of the Nepal Himalaya led directly to the greatest mountaineering feats of all time, and indirectly to a vast increase in Himalayan expeditions.

Beyond mentioning the size and cost of these several parties I have said nothing about their organization. Volume II of *Hints to Travellers*, published by the Royal Geographical Society as a sort of traveller's *vade mecum*, contains some twenty chapters and over 400 pages on various aspects of organizing and running expeditions. On the other hand, Shipton and I used to think

that if a party could not get itself organized on the back of an old envelope it was in serious danger of degenerating into an expedition. For we disliked that word and all it stood for, an attitude natural, I think, to men who were primarily mountaineers, mountaineering being essentially an individual affair in which organized parties and meets are out of place. As for the back of our envelope, all we needed to know was the number of days in the field, how many of them were to be spent living sparingly above the snow-line, and how many in the valley consuming *chang* with the harmless inhabitants of some Shangri La. Given that, we knew the amount of food and paraffin, the total number of loads to be shifted, and the number of men, mokes, mules, yaks or sheep needed, according to local usage. It is simple arithmetic. For both Sahibs and Sherpas one allows 2 lb of food a man a day; paraffin about a half-pint a stove a day; the weight of gear is already known—tents, cooking pots, ropes, personal kit, etc. More food will be required for the men who are to carry, and more men will be required to carry that; and so on, *ad infinitum*. But one does not have to be a Senior Wrangler in order to arrive at a workable solution. If animals are to be used—and one hopes they will be able to live off the country—the loads have to be adjusted accordingly. Instead of 60-lb loads, you will have loads of 160 lb for mules and yaks; donkeys will carry only about 100 lb,

From Nanda Devi, by Eric Shipton (Hodder & Stoughton)



and sheep 40 lb. One had to be more or less in agreement with Thoreau who held that most of the luxuries and nearly all the so-called comforts of life are not only not indispensable but positive hindrances to the 'elevation' of mankind.

Having entered the Promised Land of the Nepal Himalaya, after years of pilgrimage, and having found that on the whole the mountains were even higher than those outside, I felt it time for a change. When sea fever began to show itself I ceased to struggle against it. For while the sea and an acquaintance with its manifold moods is for many an end in itself, it can also be a means to an end. There are mountainous regions and islands that can be got at only by sea, and a man with a boat and the imagination to make use of it has endless scope. For instance, the Patagonian ice-cap had long attracted me and it was solely for the purpose of getting at it from the Pacific side that I bought a boat. Obviously a boat which is to serve as a base for mountaineering needs certain qualities—it must be big enough to sleep a crew of four and a couple of climbers, have room for gear, stores, and water for several months, be an able sea-boat, and fast enough to make round voyages of 20,000 miles within the year.

A boat affords great freedom of action. While rambling over the Himalaya I have said nothing of one problem that faces expeditions, that of obtaining permission to go. Even in the thirties there were restrictions, and had it not been for the opening of Nepal the areas now available would be limited indeed. Besides, there is the clash of interest when two or more parties want to go to the same area or the same mountain. No such difficulties are likely to beset the amateur adventurer by sea, who is in most countries an object of sympathy and ready help. In the last resort, no-one can stop a man putting into a place who can plead stress of weather or lack of water.

Given a suitable boat, the ability to sail her and the money to maintain her, all the logistic problems of an expedition are solved out of hand, always provided you can find a crew. Sailing for pleasure is an older and more widespread cult than climbing and there are many ways of indulging it. Sailing to climb, as I call making a long voyage to remote mountainous regions, is a fresh aspect of it which as yet is neither widespread nor popular. Hence the difficulty of finding a crew. There is no picking and choosing as one might for a Himalayan expedition; instead one is grateful for anyone who offers, and one may in the end

On the other hand it took a very big party indeed to achieve the summit of Everest in 1953

right, the Mount Everest Foundation



be reduced to advertising. One is obliged to give hostages to fortune, to lay out money and time in getting the boat ready while the vital matter of crew is left largely to time and chance.

Stocking up for a sea voyage is simpler than for a land journey where considerations of total weight, value for weight, simplicity, and methods of packing are of greater moment. On the other hand more depends on how the food is treated and the cook is the most important man in the party. In the Himalaya the question of cooking hardly arises. Either it consists merely of boiling tea, porridge or pemmican, or the Sherpas are left to get on with it. But in the confined, monotonous life of a small boat, where for long periods in tranquil, tropic seas the crew have nothing to do as they watch the sun climb the sky but to hope that they will fill their belly with good things before it sets, the cook's task is more than ordinarily grave. Nor, except for the first day or so, is there that problem of reluctance to eat which afflicts life at high-altitude camps and which has baffled and continues to baffle dieticians. Tinned meats, in quantity and variety that would be anathema on a climbing expedition on account of both weight and insipidness, are perforce used at sea for want of anything better, and can be suitably disguised by the number of trimmings one is able to carry. On the contrary, the various kinds of *chapatis* and bread which are so easily made on a wood fire on the line of march are not practicable when cooking entirely by paraffin. Biscuits are therefore an unwelcome necessity, and, since their intake in sufficient bulk calls for quite immoderate quantities of butter and jam, much turns on the cook's handiness in the matter of duff. The seriousness of this is vouched for in a graceful couplet:

We haven't been but two days at sea when the
duff it don't seem to please,
It hasn't the richness of raisins and sichness, so
we ups and we mutinies.



In *Mischief*, Tilman has sailed to Patagonia, the Crozet Isles, Greenland and other remote spots in search of new mountains to climb

Those who venture upon the sea or the hills for their recreation have something in common. On both we are challenging natural forces, usually in conditions of our own choosing, and, by the exercise of what strength, skill, judgement, experience we may possess, we expect to return from the lists unscathed though probably humbled. There lurks in us, too, the itch for discovery, even if only a new route up a mountain. Here, I think, the sea has more to offer. At sea there are no tracks or signposts. For the amateur every voyage is a voyage of discovery. As Belloc well said: 'In venturing in sail upon strange coasts we are seeking first experiences. Trying to feel as felt the earlier men in a happier time. To see the world as they saw it.'

Large-Scale



Mountaineering Expeditions

by MIKE BANKS

‘ON Everest’, wrote Sir John Hunt, reflecting on the reasons for his success, ‘the problems of organization assume the proportions of a military campaign.’ This is fair judgement, for although the rarefied atmosphere of a great peak, its blizzards and verticality, all add terribly to the difficulties, the prime and constant problem is one of logistics.

The decision to climb one of the great mountains of the earth, and the translation into action of this decision, involve an almost paradoxical mixture of feelings and attitudes. The conception of the idea is a moment of wonderment, a spiritual and emotional experience which wings the mountaineer in his imagination up to that fanciful point between heaven and earth which is the summit of a mammoth peak. But soon this moment of exaltation gives way to a deluge of practical considerations: where on earth will I get the time and money? the food and equipment? who would join me on this crazy venture? Detail upon mundane detail crowds out the emotion. You realize ruefully that to get a bunch of men and a heap of stores half way round the world, across some of the worst terrain imaginable, with the dubious support of an empty pocket, is no task for a woolly-headed climber. It cries out for an organization man.

Whereas a man is often pitchforked headlong into a Polar expedition without prior experience merely because he has the requisite scientific qualifications, participation in a mountaineering expedition (usually to the Himalayas but increasingly these days to the Andes) is more often the reward of a long apprenticeship. In Britain this, typically, would start with an introduction to rock climbing in our homeland hills. If the enthusiasm is there the climber will soon broaden his experience by going to the Alps, where he will learn the technique of snow and ice climbing and appreciate the scale of the greater mountains. But if the mountaineer nourishes a deep urge to explore he will not be satisfied by the Alps, for there almost every feasible route has already been climbed. To savour the supreme thrill of treading a virgin summit he must go further afield to the remoter ranges.

We have now arrived at the root cause, the

impulse behind a mountaineering expedition. It is the desire to take up the singular and individual challenge of an unknown, untrodden peak, to unravel the problems of climbing it as they occur, and finally to trace a route entirely of one’s own making to the summit. These considerations hold substantially true even when the mountain is not entirely unknown but has withstood the assaults of previous expeditions. The challenge is still the unknown section of the peak above the point where the earlier attackers met defeat.

How then does the expedition actually start? It is conceived when a climber, with an urge to explore, takes stock of his assets. He discovers that he has the necessary experience in rock, snow and ice climbing to be considered competent; he could just about afford to spare three months away from work. He realizes (in the case of my friends, anyway) that he has nothing like enough money. A little simple arithmetic pencilled on a beer mat in the bar of a pub reveals that by selling his car, anteing up all his savings, and perhaps putting his wife out to work, he can raise about half the money required for the expedition. He will then find a kindred spirit with similar assets and aspirations, and the expedition is born.

What follows next is by far the pleasantest phase of the planning. Irritating and worrying details, such as money, equipment or political permission to climb in the country concerned, have not yet obtruded. The big decisions have now to be made: is the party to be a large one and is the peak to be a very high one? Every sensible Himalayan mountaineer has recommended most emphatically that, for pure enjoyment, the party should be small, and the peak not higher than about 20,000 feet. This excellent advice is, of course, almost always ignored. The lure of the great names of unclimbed giants, the magnificent sense of achievement in treading for a few moments one of these summits, these exclusive points on the earth’s crust, is too strong. So it usually ends in a list of unclimbed Himalayan peaks, in order of altitude, being drawn up and a likely one being picked out. In other words the expedition is to be on a large scale.

Let us assume that the mountain is a really high

one, over 25,000 feet. Once the choice has been made the problems come crowding in and the leader and his friends must now face the fact that for the ensuing year (it is wise to choose your peak at least a year before you intend to set off) they will have precious little leisure. Part of each evening and most week-ends will be devoted to letter writing. The bureaucratic effort is quite unbelievable and from the outset good office procedure, with filing systems and carbon copies of all outgoing letters, is necessary if subsequent confusion is to be avoided.

Finance is a dominating factor. The greatest expense is for the various forms of transport: flying the members out; sea freight for the expedition stores; rail, lorry and porter charges to carry the stores to base camp. All these will add up to about two-thirds of the total.

The safest way to avoid financial crises is to make a not over-optimistic estimate of the amount the expedition can almost certainly raise and then restrict planned expenditure to this sum. If, from the start, members agree to make heavy financial contributions, these contributions can be reduced if and when the expedition receives help by way of donations in cash, services (such as free or cheap transport) or kind. If the plan depends on financial help from a source which, in the event, fails to materialize the whole expedition is thrown into confusion, and faces the prospect of becoming stillborn. Conversely, a modest expedition, planned within its budget, can easily and happily be expanded, even at the eleventh hour.

Any talk of expedition finance would be incomplete without mention of that fairy godmother of modern climbing expeditions, the Mount Everest Foundation. This Foundation dispenses the profits made by the successful Everest Expedition of 1953. Expeditions usually receive a grant of the order of £100 per member. This sum does not pay for the expedition but, added to the sum one receives for having sold one's car, it suddenly makes everything just possible.

Planning a large-scale expedition is too much for one man. The leader is therefore usually guided by an expedition committee on the one hand and assisted by his fellow expedition members on the other.

If the expedition owes allegiance to some institution, the chairman of the committee should belong to that institution. He might be a university dignitary in the case of an undergraduate expedition, or a senior officer if the

party is composed of service men. The committee should be small and should contain, in addition to the chairman and leader, at least one climbing member, a treasurer (I have enjoyed the very expert help of a banker who takes a kindly view of climbers and a tolerant view of their over-drafts), and the literary agent. The latter will be able to sell the expedition copyright much more effectively if he is kept fully in the plot.

An expedition committee, under good chairmanship, lends authority and stability to an otherwise fairly piratical bunch of climbers. The non-climbing members are also extremely useful when the expedition is in the field, and it is most reassuring, when out of touch up on the mountain, to know that at home sympathetic and responsible people are dealing with the surprising number of unresolved problems which are left behind (once none of our film turned up and had to be specially consigned out to us). They act as press agents for cabled snippets of news, and form a link between climbers and their families should something tragic occur.

The father-figure of a patron is also an asset to any expedition. He is usually a public figure, too eminent and almost always too busy to concern himself with the bread-and-butter chores of the committee but—and this is the important point—a man who thoroughly approves of the spirit behind the enterprise and who is very ready, if there is a real crisis, to throw his weight in on your side if the issue is critical enough. It is something less than honest to inveigle a man who cares not a jot for the hills to become your patron merely because he is a national figure. Field-Marshal Templer became the patron of a joint-services expedition I led to Rakaposhi (25,550 feet), and of several subsequent ones, and in him we were happy to find a man whose enthusiasm for the venture was no less than our own and a person who believed in encouraging enterprise in the services.

The sooner the climbing members are chosen the better, because the leader can then set them to work. The best, if an undemocratic, way to select them is to invite climbing acquaintances of known prowess, enthusiasm and suitability. Alternatively, volunteers may be called for via climbing clubs, university notice-boards, or service orders. This alternative method may be necessary if large financial grants have been made by the organization concerned and, in the interests of fairness, everyone must be given an equal opportunity to go. Selection should be made

by the committee rather than by the leader.

The number of climbing members and high-altitude porters will by now have been decided upon, the proportion of each depending upon whether or not Sherpas can be employed. This needs explanation: a Sherpa is undeniably the best high-altitude porter in the world. He has built up a great tradition, will go anywhere his sahib cares to lead him, usually with greater ease, and even seems to enjoy the game for its own sake. But the Sherpas, coming from Nepal, are not allowed to enter Pakistan for political reasons. So, if an expedition plans to climb one of the many magnificent peaks in the Karakoram Range, or in the Hindu Kush in Pakistan, it will not be able to employ Sherpas. The hillmen of Pakistan, of whom the Hunzas are probably the best, are not in the same class as the Sherpas and do not have the same reputation for reliability. Nor are they the same prodigious carriers.

It is therefore my opinion that, with Sherpas, it is quite sound for a party of four to attempt a great peak. Without Sherpas the likelihood of the porters refusing to carry much beyond 20,000 feet (as happened once with me) must be allowed for in the planning stage, and sufficient sahibs must be included in the party to do their own portage above this altitude. This consideration has serious repercussions on the logistical and financial aspects.

The policy regarding oxygen must be established at an early stage and this is neither an easy nor a straightforward task. The arguments are both ethical and practical.

The purist will say 'oxygen reduces all mountains to sea-level.' By nullifying the huge difficulties created by the lack of oxygen in the atmosphere at great heights, the task is made so much more easy that the main reward of the climb, the sense of achievement, is greatly lessened. The question will arise: 'Is oxygen necessary for our particular peak?' Mountaineering history provides the key. Half-a-dozen men of exceptional power have climbed above 28,000 feet without oxygen on Everest. At that height they were at the very limit of human capability, men who were hostages of death. No-one yet knows whether it is within the power of man to climb unaided to the summit of Everest at 29,002 feet. This remains one of the greatest challenges left facing us in our fast-shrinking universe.

If 28,000 feet remains the upper limit beyond which oxygen is probably *essential*, the ascents without oxygen of such peaks as Dhaulagiri

(26,795 feet), Annapurna I (26,492 feet) and Nanga Parbat (26,660 feet) indicate what is reasonably possible. The rule-of-thumb normally applied today is that oxygen should never be used on peaks below 26,000 feet but—and Sir Edmund Hillary agrees with this—it should be used on peaks over 27,000 feet. For mountains between 26,000 and 27,000 it is a matter for one's own conscience.

Oxygen equipment, being expensive, pushes up the total cost of the expedition; it also complicates the plan of assault. The truth of this is apparent when it is realized that the whole build-up of lower camps is devoted to establishing a single lightweight tent, with a few days' food and fuel, for the summit pair. Oxygen apparatus almost doubles the weight to be carried up to this final camp and the effects of this overloading at the apex are felt all the way down to base camp.

The doctor will feel relieved if oxygen is taken because it can literally be a life-saver if a man

Major Banks with Field-Marshal Sir Gerald Templer, who acted as patron for several of Banks's expeditions

Official Admiralty photograph. Crown cop



catches pneumonia at a high camp. In passing, it is usual to take a doctor, who must also be a climber, on a large-scale expedition. Even if he cannot cure you he can usually tell you the name of the illness that is killing you, which is a comfort to the tidy-minded. He is also better, but only a little better, at pulling teeth than the layman.

There is a mass of work concerning the detailed planning to be done, but this cannot be started in earnest until a firm and clear outline plan has been formulated. This is perhaps the most important axiom of all. Individual expedition members will be eager to start organizing their own section of the expedition work, divided into such categories as food, equipment, photography, medical supplies. If they are to do their jobs coherently they must be given the skeleton plan about nine months before the expedition starts: how many members, how many high-altitude porters; the estimated times of the march-in, the build-up and the assault so that appropriate food can be obtained; the estimated number of camps required, which will influence the amount of equipment needed.

An expedition can seldom if ever afford to buy

outright, at retail price, the food and equipment it requires. There is no alternative but to approach a host of firms in the hope of obtaining goods either free or at concessional prices. A tidal wave of begging letters surges out from the expedition. It is a good idea at this stage to have a short expedition brochure printed, which is attached to begging letters and serves the double purpose of presenting the salient facts of the expedition attractively and at the same time saving a great deal of repetitious typing.

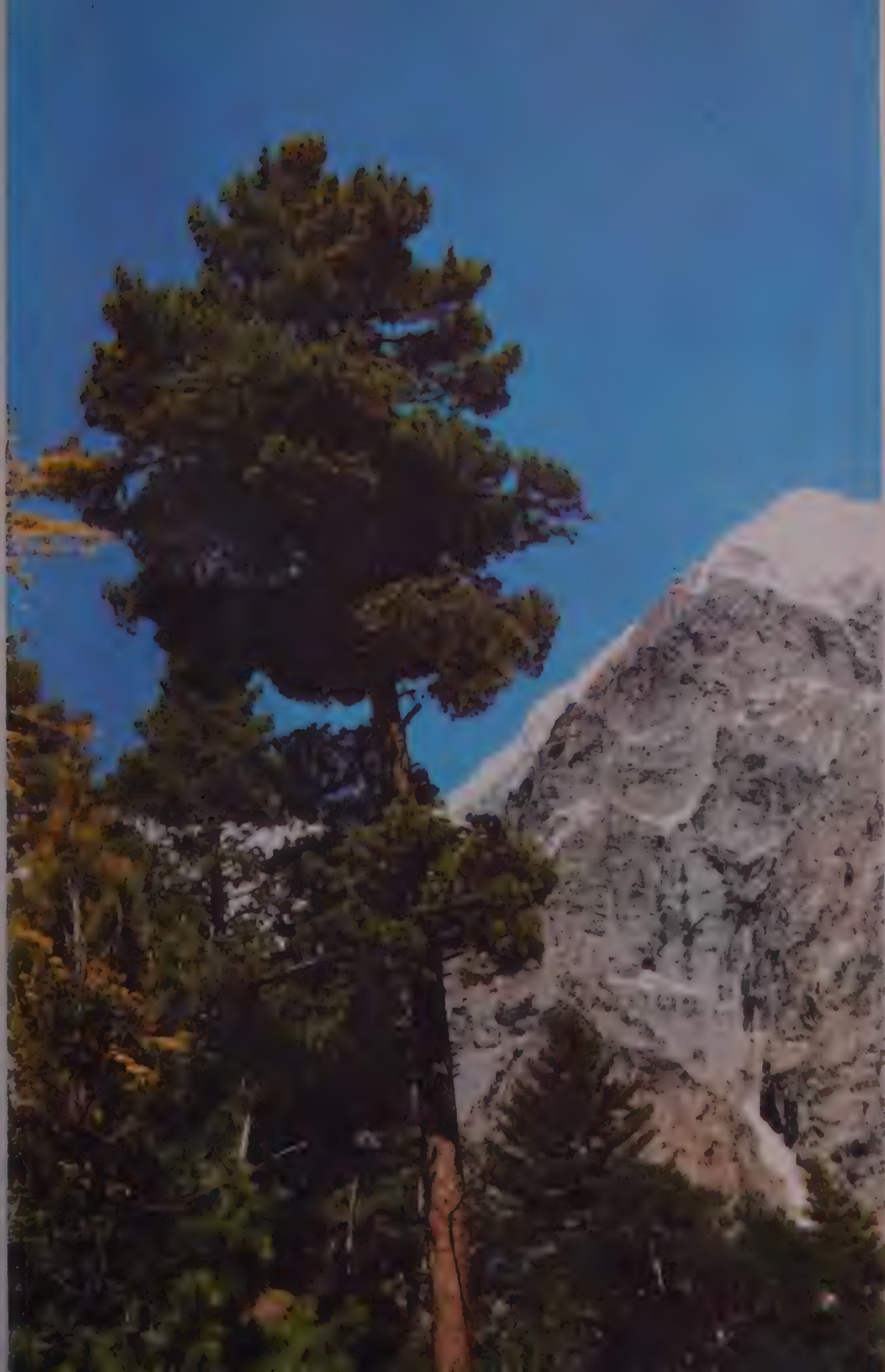
There are some general rules about obtaining free goods. It is seldom any use approaching a retailer, for instance a large store, which has to buy the finished article with cash. Always go to the manufacturer. When he gives his goods away he is only giving the raw materials and the price of the labour, so it does not hurt him as much as it would a retailer.

I have found that large firms, particularly those run by Quakers, tend to be generous. Food is usually far easier to scrounge than equipment, which is mostly of a specialized nature made by small firms. High-altitude boots are an example. A small firm cannot easily give away £100-worth

(Below) Some of the glaciers in the Karakorams are the largest in the world outside Polar regions; when they melt in summer every mountain trickle becomes a torrent to harass climbers. *(Opposite)* All the tedium is forgotten in the first exciting glimpse of the chosen objective

From the author









(*Opposite*) The paraphernalia of bureaucracy, including typewriter and tape-recorder, dogs the leader (in this case Banks) all the way to base camp. (*Above*) The passage of a large-scale expedition completely disrupts village life when every man signs on as a porter for a few days

of its products unless there is some real advertising value to be gained from the fact that the expedition used these particular goods.

Finally, when trying to get something for nothing, a visit to a firm is usually more fruitful than a begging letter. I have found this particularly true of Scottish or North Country manufacturers, who seem to be convinced that the southern English are toffee-nosed prigs and are quite agreeably surprised, when confronted, to discover at least one enterprising specimen from the south who is a reasonable human being. I recall visiting a Lancashire firm complete with my

file of begging letters which I had labelled, with more honesty than tact, 'SCROUNGE' in large letters on the front. It was only as the interview concluded (successfully as it happens) that I realized that this file had been lying on the managing director's desk. I assume he was not very good at reading upside down.

Photography needs organizing, including a decision whether or not to take ciné, with the hope of selling the film to television for a handsome sum. On the television screen one mountain looks very like the next and these films are not easy to sell unless you have a tragedy, when

the macabre aspect, regrettably, has sales appeal.

It is also usual, on a big expedition, to make the members sign a gentleman's agreement concerned mostly with the copyright. This ensures that literary profits are churned back into the expedition funds, generally with a bonus for the author to pay him for his trouble. It also enables the leader to get his book published without competition from any other aspiring writer on the expedition.

The expedition then sails, leaving half-a-dozen urgent problems for its committee to sort out.

Its success or failure in the field will be fully chronicled in the newspapers and, eventually, in its book. But what tasks have to be done on its return?

Apart from literary activity and lecturing, the most important job is to thank every firm that provided food or equipment. This is most easily achieved by having another small brochure printed, giving the story of the expedition, which is then attached to a thank-you letter explaining how the firm's product fared. These letters are of the utmost importance and are sometimes



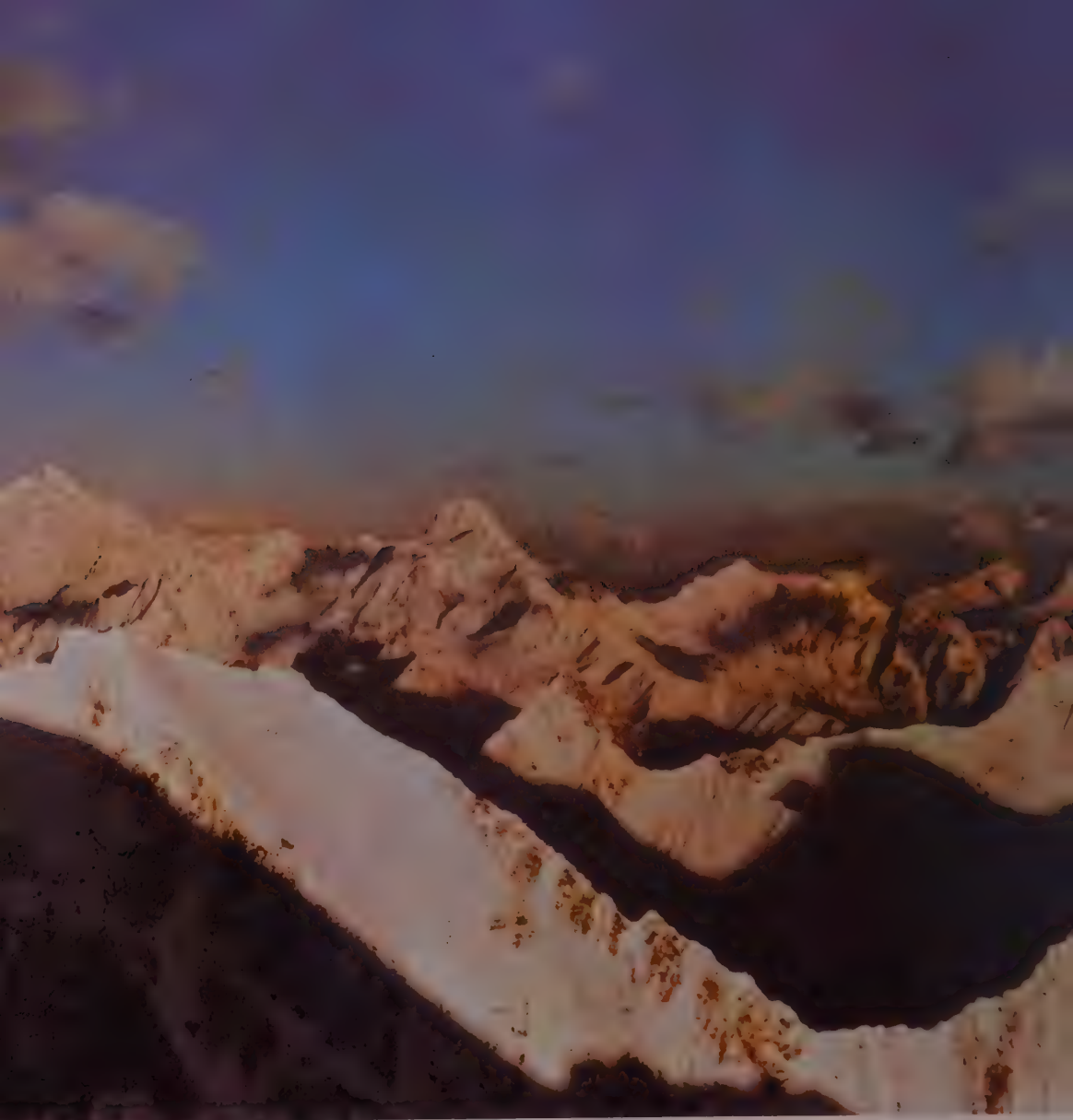


(*Opposite*) Banks' 1958 expedition camped in a peaceful fir forest during the approach march to Rakaposhi. It is noteworthy that, on the two expeditions led by Mike Banks, not one item was stolen although the villagers had countless opportunities to do so. By way of contrast an expedition in a neighbouring valley last year had its stores so badly pilfered that it caused a very real crisis. (*Above*) Except on that one day when he makes his bid for the summit, the Himalayan climber is weighed down like a beast of burden with a huge rucksack as he plods between the lower camps stocking them with food and equipment to a pre-arranged plan



(Opposite) The serenity of evening at 19,000 feet on Rakaposhi. The ranges reached far into High Tartary, the peaks, most of them unnamed and unclimbed, waiting for mountaineers yet unborn. (Below) The porters improvise a triumphal arch and slaughter a sheep, to celebrate not only the expedition's success in the assault on Rakaposhi but also the Muslim festival of Ibrahim





The western extremity of the Karakoram Range, with Haramosh on the left and Dobani in the centre

skipped by the unmannerly. This is a grave disservice to the next expedition which appeals to the same firm for assistance.

The expedition committee should continue to exist for about two years, by which time the literary revenue will have dried up.

To sum up, climbers are highly individualistic people who are instinctively resistant to regimentation or the bureaucratic side of planning. Nevertheless, if the organizing phase is not to

develop into a shambles, with resultant confusion in the field, a clear, firm and highly practical outline plan must be made at an early stage; in fact the earlier the better. If this is done, the planning at home never becomes hopeless or desperate and, perhaps to everyone's surprise, the expedition in the field goes 'according to plan', the secret being that the person who made the plan in the first place probably knew a great deal about Himalayan climbing.

University Expeditions

by DOUGLAS BOTTING

It is high summer in Oxford and the term has ended. The last tired note of the saxophone has died away at the last Commem. and the marquees are dismantled and the flowers withered and discarded. No-one punts now under the arching trees of the Cherwell; no-one drinks too much beer in the Bear or the Mitre Tavern; no-one is sconced; no-one is gated; no-one plays shuv-ha'penny in the J.C.R. throughout the long Oxford afternoon. For no-one is here.

No-one, that is, but a group of earnest young men, seated on empty champagne crates, heating baked beans over a Primus roaring in the hayloft of a derelict stable off St Aldates. There are camp-beds along the floor, maps on the wall and a bush hat covering a shattered window of the old loft. Below, in the stable itself, is strewn a magnificent confusion of tins, tents, hypodermics, sacks of flour, lamps, parachute hampers, a broken guitar, cameras, microscope, two shot-guns and, status symbol *par excellence*, a beautiful kerosene refrigerator. The stable door is ajar, letting in the pealing of the bells of Big Tom, the drone of traffic in the High; letting in the postman with a vast carton containing a Very pistol, binoculars, mosquito nets, six water-bottles and a bill of hire from the War Office.

'How much more do you want?' he grunts as he adds the carton to the other hundred and fifty crates and boxes, the three tons of stores that will keep the earnest young men alive and vaguely functioning in the weeks ahead, in the far distant place ahead, whither they will shortly be bound. The postman goes out and the door, bearing the simple notice 'Oxford University Expedition to Socotra, Headquarters', closes gently behind him.

The Primuses (presented gratis by the manufacturers, like so many other items of expedition equipment, in the cause of the furtherance of scientific knowledge and the spirit of adventure) seem to have worked efficiently; the baked beans are eaten and the young men resume their work. The tall, stooping one (whom I recognize as myself five years ago) makes some rapid calculations and says:

'Three weeks to go and still a thousand pounds short.'

And a companion, who is a botanist, says: 'Too bad. Do we really want supermeats, mixed squares, terrier, puppy and dog cakes? The firm we wrote to went broke two years ago and its successors only make dog biscuits.'

'Tell them', the stooping one, myself, says, 'that though in the end we may have to eat like dogs . . . Try Huntley and Palmers.'

The phone rings. It is the film company. They will provide the cameras we want but we must get plenty of shots of the party eating, sleeping, combing their beards, strumming the broken guitar against a setting tropic sun on a mountain top—it just adds that personal touch the public likes. The phone rings again. 'That cable you sent to the C-in-C, Cyprus,' the girl says sweetly, 'went to Malta after all. What would you like us to do with it?' I tell her, briefly and with a minimum of expletives.

At midnight the work still continues, labelling, listing, weighing, packing, planning and planning. So much to do and only three weeks to do it in. Three weeks left and behind us eighteen months of preparations, of stillborn brainwaves, setbacks and successes; the arguing for funds, for recognition by learned bodies and the University itself; discussions in high places, in a Government back room, a shoe factory work-shop, a committee meeting of the Royal Geographical Society, a little bedsitter on the Iffley Road; the gathering together of the team of six, the drawing up of routes and timetables, lines of research; the acquisition of stores, entry permits, injections; the rejection of scorn, well-meant bad advice, and despair.

What had started as an idea for a mild adventure in the Long Vacation has snowballed out of all control and become a serious scientific project, all-embracing and weighty in its responsibility, involving high authorities in three continents and impossible now to stop—its own momentum carries it further and further forward, only to resolve itself finally on that remote, unknown, unexplored and barren island in the Arabian Sea to which the six earnest young men are about to be propelled in only three weeks' time.

The next morning the postman wakes us. He brings a telegram. It comes from the Arabian



Below: Students illustrating the 1960 International Year of the Girl.

Arrayed on the lawn of King's College, Cambridge, are all the expeditions for 1960 that were launched from that one University

R.A.F. Command and says, quite blandly: 'Much regret previous arrangement for airlift Oxford expedition to Socotra impossible. Letter follows.'

There is no other way of crossing the sea to Socotra. . . .

Labour pains such as these, after the sudden passionate conception of the idea (probably during the long dark winter when the College gas fires seem inadequate and the first exams loom and grow more oppressive), cannot be altogether unfamiliar to the 900 or more students who, in the last ten years, have voluntarily undergone the travails of University exploration. For University expeditions, organized principally by undergraduates on their own initiative, are booming. Last year the Royal Geographical Society gave financial aid to fourteen such enterprises and approved ten others; the Geographical Magazine Trust Fund, which annually makes substantial awards for serious exploratory work, has to date provided funds for sixteen of them. Statistics, in so far as they prove anything, prove this extraordinary increase in the activity of University students in field work and organized missions outside this country and the tourist paths. University authorities have not been keeping records of these activities for long, but what records are available show that between 1935 and 1939 ten expeditions set out from British Universities; between 1951 and 1955 there were 68 such expeditions; in the last five years the number has trebled—at least 186 expeditions involving over 500 undergraduates and over 120 postgraduates have visited over 90 countries abroad.

How does one account for this new development in University life, unique in the history of higher education? Are undergraduates nowadays more adventurous in spirit? Do they seek knowledge gained by their own sweat and toil more avidly than before? Is the condition of civilization now fallen so low that more and more thinking members of the younger generation are driven to find solace among the lonely glaciers, deserts and jungles of the uncivilized world? Probably not; what have changed are the circumstances—the opportunities for exploratory work are greater than they have ever been and they are extended to a wider range of people.

Before the war, expeditions by undergraduates were generally the privilege of a privileged few, mainly from Oxford and Cambridge. The undergraduates were mostly rich, or pretended to be,

and expeditions were few because the majority of undergraduates who wished to do so could afford to travel exotically under their own steam at their own expense; those who preferred to travel in a more organized way had to pay a considerable share of the costs out of their own pocket: the Oxford University Hudson Strait Expedition of 1931, for example, cost £1503, of which £1127 came from members; by comparison, my own Socotra expedition cost nearly £3000, of which £450 was provided by the six members. In other words, with the changed social and economic character of post-war British University life, lack of private means is no longer a bar to participation in expedition activities.

The bar nowadays is of a different sort. Today the student explorer must be a specialist—usually a scientist, occasionally an Arts man, an archaeologist or a linguist. It is generally difficult for a student studying, say, English Literature to find a place on an expedition exploring the Greenland ice-cap, for the simple reason that there is nothing specifically useful he can do that will earn him a grant from one of the learned bodies which now bear a considerable portion of the expenses of University exploration. Very often it is a case of no grant, no place in the team, unless the non-specialist can make himself indispensable as a mountaineer, cinematographer, champion inflator of lilos—or appoint himself, as I did, leader of the expedition. He has no other way, for if he has no special qualifications, he certainly has no fame and little or no experience by which he can 'sell' himself.

For the scientist undergraduate the situation is indeed favourable, and an official expedition, with well-founded plans and a useful scientific programme, will usually have scraped up enough funds by the time it is ready to depart for its chosen corner of the globe to permit some subtle variation in the basic field diet of pemmican or dates and rice. The Trust Funds, Societies, Foundations and College or Government Departments will now contribute substantial grants to student expeditions which they approve; and, yearly, many firms will provide—for whatever reason (surprisingly rarely is it advertising)—a large bulk of provisions and equipment free of charge or at considerably reduced rates.

There are other factors, too, to account for this increase in University exploration. There are more students than ever before. Until recently many of them, because of National Service, were older on average than they used to be, and



All remaining photographs from the author

A University expedition in embryo: the author in an Oxford stable, preparing to go to Socotra

military service abroad had already given them a vision of wider horizons and greater maturity and experience of responsibility than could be expected of an ex-schoolboy. There are more Universities bestowing their official blessings on student parties departing from their Colleges and Halls, whereas before such patronage was largely confined to Oxford (whose pioneer Exploration Club, under a strict and highly responsible system of organization, has been putting expeditions in the field every year since 1928), London, Cambridge and Durham. Other Universities are realizing now that here is an incomparable opportunity for students to further their knowledge (and perhaps their academic courses) by the sweat of their own original effort. In the last three years Glasgow University has had an active Exploration Society. Bangor is planning its first expedition (to Greenland) this year; so, too, is Aberystwyth; Bristol's first expedition is still in the field; Exeter, Southampton, Hull, St Andrews, Liverpool, Nottingham, Leicester and Aber-

deen—all have been active in recent years. Few Colleges are not participating these days. Those that are not channel off the students' exploring itch by organized field courses nearer home; or perhaps they disapprove of an entire summer spent out of range of desk and text-book.

A new feature, itself a symptom of this growing movement, is the formation at Oxford of a Women's Expedition Club. Already it has sent out one expedition, to the Azores. This year a team of women will carry out geographical field work in the Madeiras, and another party hopes to visit Nyasaland. Soon there will be a need for a coordinating body on a national scale if there is not to be a surfeit of University expeditions duplicating each other's plans and cutting each other's throats. Oxford and Nottingham have made some attempt at coordination, on a local scale; seventeen expeditions are planned from Oxford alone this year, of which only three are entirely official. Obviously some sort of check will be required.

Like galaxies (according to one theory at any rate) the student body of this country appears to be expanding outwards from its centre, whirling away into remote and empty places. There are few parts of the world that have not been tramped by well-shod, twenty-year-old feet; few tribesmen in jungle or savannah who have not squinted at noon into the Leica lenses of casual young men down for the Vac. in the back of beyond. University expeditions have explored as far afield as the New Hebrides, Peru, Sarawak and the barely penetrable Danakil country of Ethiopia. One has spent an entire year in the Arctic; several have surmounted high peaks in the Himalayas; a few are turning their attention to the sea bed, exploring the Mediterranean under water.

Biologists, glaciologists, archaeologists, pollen analysts, geomorphologists, soil scientists, historical geographers, biochemists—one and all they have contributed, in big and small ways, to the culling of information from the surface of the globe. Their specimens go to the relevant receivers; their reports are published; their examinations are usually passed in the end. It would be difficult for anyone but a *very* shrivelled academic to deny the value of these expeditions.

Not all, of course, are entirely scientific even in their avowed purpose, and some of the unofficial expeditions are barely scientific at all. This is not a criticism; it is simply a distinction. Adventure is valuable at a certain age and, all things considered, probably as much is gained by the student who manages to negotiate his Land-Rover along the Burma Road at the onset of the monsoon rains as by the one who collects ferns on the banks of the Zambesi. Such adventurous expeditions are an extension of the sort of education provided by the Outward Bound schools; and if the expeditors (a useful word) can overcome the extraordinary difficulties they are bound to meet in their preparations, and raise the money, then they should have all our blessings. For light-hearted though they may, and perhaps ought to be, they are seldom light-headed. Since the war there have only been six serious accidents, by far the worst being in June of this year when five London University students were drowned in Jan Mayen.

The setting out of these expeditors is like a little flag raised in defiance of admass and the blinkered organization man, and the world is a little brighter where they pass, as pass they will. . . .

Loading stores for the Oxford Socotra Expedition. The champagne cases did not contain champagne





After reaching Socotra the Oxford Expedition transferred from a plane to (*opposite*) camels

... It is dawn—a red oriental dawn expanding suddenly behind the black, bare, awful rocks of Aden. Steamer Point at six o'clock; the air still cool but even now the feeling of a hot day coming. The lighters tie up alongside the rusting steamer that has brought us this far and our stores are disgorged into them. We have got here united and intact; but how we cross the remaining 500 miles of sea, invade the island that unawares awaits us, none of us can be sure.

At the hotel we have coffee with the Air Vice-Marshall. 'Since you are here,' he says kindly, 'you cannot turn back. How many planes will you need, and for when?' In all the long time of our preparations, perseverance above all things had been the first requisite; everything might go wrong but still one must persevere, the luck would change and something would turn up if one tried hard enough to make it do so. Perhaps this was the biggest lesson we learnt, among many big lessons. It was a priceless experience.

The streets of Maala are crowded and full of strange scents. We chew *qat* at a stall, but nothing happens, no ecstasy, no mescaline visions; we buy Arab head-dresses in a dark shop full of

photographs of Nasser, and we try them on, sheepishly, conscious that Lawrence, late of this same Arabian peninsula, had once looked just as we looked now, but less naïve perhaps. We employ two Somali bearers; take drinks with the Governor between the ancient cannons and the brilliant sentries on the terrace of Government House; change £500 into one-shilling pieces which we lock in an ammunition box so heavy no ordinary camel will ever be able to carry it. We write our last possible letters home before our voluntary marooning; sleep our last sleep between sheets.

In the morning we drive up to the airfield at Khormaksar. The crews wait beside their aircraft. 'Are you the Oxford party?' a pilot asks. Identical in white shirts and shorts and suede chukka boots provided so generously by a factory in oh! so distant Essex, I wonder who else we might have been.

The propellers turn; we ascend, circle once over the Crater and then speed along the green Arabian Sea and the long white shore, eastwards, into the sun.

Another University expedition is born.



Exploration as a Business

by S. V. SYKES



A Shell photograph

Expeditions organized for the scientists of a big business concern have problems of their own but they are very different ones from those that face the ordinary non-commercial expedition. (Above) Two dynamite trucks and an instrument car returning to camp after a survey in Colombia

COMMERCIAL exploration starts with a budget. This is either a rough estimate allowing, say, 15 per cent for contingencies when starting in a new area, or else a very detailed one, as would be the case when the requirement is to mount a survey in a country previously visited, for which there is an established organization.

The first consideration in commercial exploration is to get the maximum amount of information in the minimum time, in order to cut down the overheads. The most important single factor in speeding up exploration has been the modernization of transport. Modern transport methods move the explorer around at remarkably high speeds: it is now possible to leave London in the morning and be with a working-party in the middle of the Persian or Saharan desert on the same day. This sort of speed calls for meticulous planning, and the carefree days before highly mechanized exploration have disappeared in all save the outposts of the world.

Before the advent of dependable and cheap universal land and air transport—such as Land-Rovers and helicopters—the exploration geologists and geophysicists had to be men who could appraise a horse, a camel or a native bearer with a wary and usually expert eye. In retrospect the job was glamorous. The old surveys proceeded at a gentlemanly pace and there was a good deal of competition for the privilege of being included on them.

To get to the starting-point of the survey took you as long as three or four weeks, which proved to be an admirable shake-down period for men and animals. In that time you could develop a feeling of friendship, or at least respect, for your horse—perhaps even for your camel—which would persist through the survey period. At the end of this type of survey it was a poor man indeed who did not feel pangs of regret when the transport was disbanded.

In contrast, nowadays the average man is



Ektachrome

By courtesy of the British Petroleum Company

A survey team of the Australasian Petroleum Company in the jungle near Kuru, in Papua. Even with the advantages of modern transport, prospecting still involves a lot of hard travelling in remote areas

In the heart of the Canadian Rockies. Helicopters, in spite of their cost, have greatly increased the efficiency of commercial exploration. Now men and supplies can be quickly landed in places which are weeks or even months away by other means of transport

Bird

Ektachrome





Both Ektachromes by courtesy of the British Petroleum Company Ltd

(Above) B.P. lorries on the Dune de Kneir, on the track to the oasis of Sebha in the Libyan Sahara.
(Right) Getting out of difficulty by sand-tracking on the approach to the Murzuk Sand Sea, south of Sebha





A Shell photograph

Ektachrome

An oil exploration technician taking gravimetric measurements on the Amacuro Delta of the Orinoco River, in north-eastern Venezuela

thankful to kiss his helicopter good-bye. To feel friendly towards the metal monsters is impossible—at best you can respect them, and you fervently hope they will last out the season.

One must, however, move with the times and accept efficient transport. If you can reach an important piece of work in the mountains in twenty minutes by helicopter instead of two days on horseback or on foot, then it is hard to argue in favour of the good old days. The helicopter can, moreover, get you to mountain sites that would be inaccessible otherwise. Similarly, you can cross deserts in an incredibly short time in a four-wheel-drive vehicle like a Land-Rover and you can penetrate to places quite beyond the reach of a camel or horse.

Geological exploration in the Canadian Rocky Mountains, to take one significant example, has become more and more efficient over the past few years since the introduction of helicopters as beasts of transport. Pre-survey planning is now relatively simple. Civilization in those parts is rarely more than one day's journey away, if helicopter and road transport are used judiciously, and the supply problems are reduced to a minimum. During the survey the party is run completely by the man in charge on the spot—in fact it is a self-contained unit.

But to get back to the budget. Once this is approved, the organization of the expedition gets under way. If it is a geological survey in a moun-

tain area, a team, usually three to four geologists and two to three students, is assembled. The geologists belong to the company mounting the expedition and the students will be available during long vacation from universities. A helicopter, complete with pilot and engineer, is booked for the season, and last, but really most important, a cook is recruited. The cook is worth his weight in gold and can make or mar a field season; there are likely to be a few hardened veterans on tap, or the party leader may have one tucked away. Pity the brand new team starting off: there are cooks and cooks! The recommended man who can cook like a chef may develop a *penchant* for rum and retire for a few days to think things over; in the meantime the students do the cooking with disastrous results all round. But this is a problem that even stay-at-homes have to face.

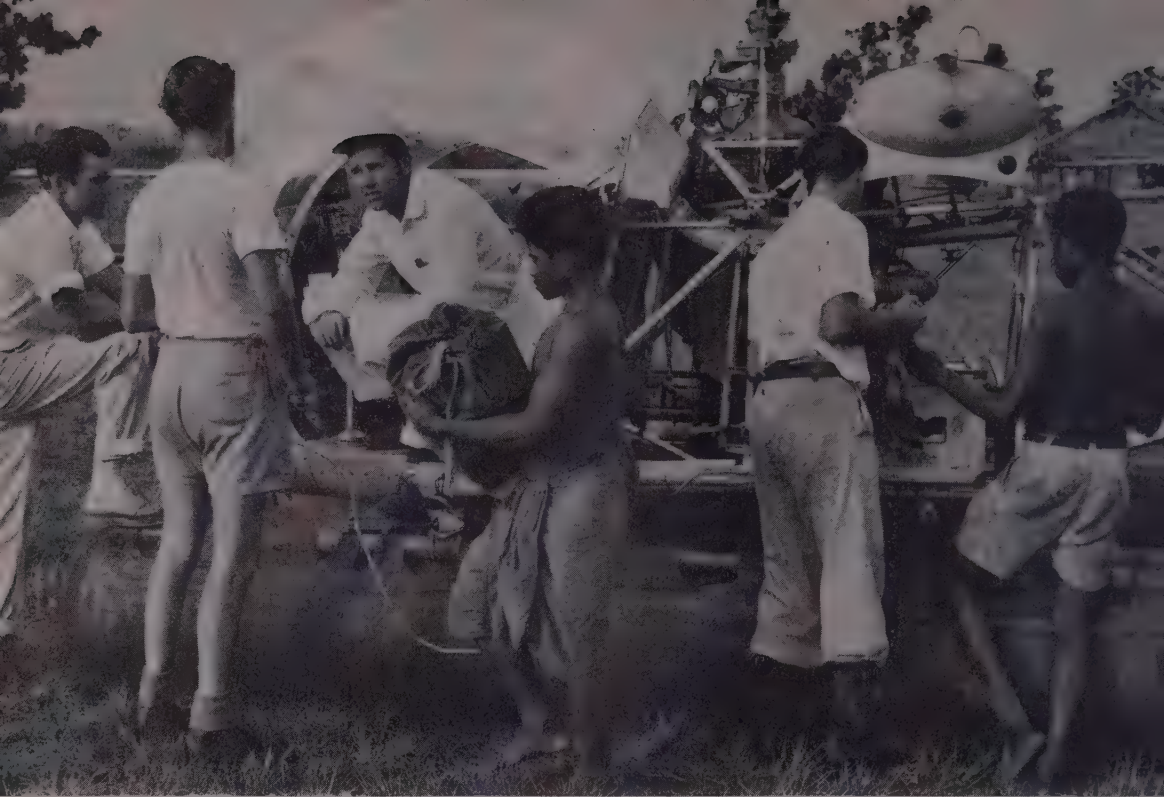
Before they leave, the geologists spend several weeks in the office in order to familiarize themselves with the area, studying aerial photographs and developing a working field programme. Field gear is probably already available and necessary items are collected together, loaded into land transport—Land-Rovers or similar vehicles and station-wagons—and the party proceeds to the agreed starting-point. The helicopter arrives at the rendezvous the following day.

Next, supplies have to be thought of. Food, fuel and oil must be provided. Motor transport

Launches carry seismic teams who are taking part in an oil-exploration expedition in Nigeria

A Shell photograph





by courtesy of the British Petroleum Company Ltd

Loading a helicopter in Papua, where they have been used for drilling and geophysical research

is used whenever possible during the survey for collecting food and petrol and moving camps and men. In a country like Canada supplies can be dumped beside a lake if there is one large enough, which is often the safest and cheapest way of getting them into the remoter areas. In winter when the lake is frozen this is done by ski-plane; in summer, by float-plane. Sometimes it is necessary to provide staging for helicopters to land on.

Once the survey party begins the field operation, detailed planning by the party leader is essential in order to get as much done as possible in a limited time; for the geological field season in the Canadian Rockies is limited to four or five months a year because of the onset of snow in September, which effectively masks all rock outcrops until May. The leader has to organize his men into efficient work teams, run a tight helicopter schedule, arrange all supplies from the nearest available centre, keep the accounts, care for the road transport and supervise everything including helicopter camps.

A complete survey of this type, involving, apart from the time spent in the field, three to four months' office work for two of the geologists,

together with drawing-office and typing facilities, would cost about £10,000. The most expensive item is the helicopter hire, which may be as much as £6500; but it pays for itself in the enormously increased amount of work that it allows to be done.

What we called 'the horses' last stand' occurred on one of these helicopter surveys. Our company helicopter with pilot and two geologists aboard made an interesting shot at landing, missed, and attempted to go around again. Unfortunately the machine connected with a stand of trees while gaining height and somersaulted to earth. Thanks to tight seat-belts, all that happened to the men aboard was a good shaking up and a few bruises; indeed one of the geologists was sufficiently recovered in a very short space of time to unfasten his seat-belt, open the side door and stand on the other geologist and the pilot in order to climb out. They, on the other hand, merely walked out of the front of the machine, as with considerably more acumen they had perceived that the plastic bubble in the nose had not survived the rough-and-tumble. After a nine-mile walk over fairly difficult country the party reached camp at dusk. Fortunately horses were available

there, and the packer and assistant packer departed on horseback early next morning to get word of the débacle back to headquarters and to order a replacement machine.

This was indeed a tale of triumph for horses: they saved the geologists a six-day walk and enabled the replacement helicopter to be ordered correspondingly sooner; and when the salvage operations got under way, it was found that the country was so rough that horses were necessary to transport the pieces of the crashed machine to a neighbouring hill-top to give the salvage helicopter a clear take-off.

In contrast with the Rocky Mountains, geological exploration in Papua has stayed much as it ever was. Helicopters, although very useful in drilling and geophysical exploration, can rarely be used for the actual exploration work, as the thick rain-forest affords practically no landing-places and tremendous distances are involved. Thus local bearers remain the maids-of-all-work

in Papua. However, air transport has speeded up the preliminary operations and supply problems have been simplified by the introduction of air-drops.

A reconnaissance geological survey of some 2000 square miles of mountainous, densely forested limestone country will last about four months. Some of the immediate worries are field staff, labour, supplies, communications and maps. Discussions are held with government officials to obtain all possible information on the survey area and surrounding country. Aerial photographs in the company files probably cover part of it and rough maps are prepared to assist in the forward planning.

Since the area is so inaccessible, the survey is geared to a three-man team consisting of two geologists and a labour supervisor with a knowledge of medicine. These men are already on the staff of the company, so there are no difficulties here. A three-man team of this type is the most

Sometimes a helicopter comes to grief and has to be carried by men instead of the other way round

By courtesy of the British Petroleum Company



efficient party: the geologists run two sub-surveys and are supported by the labour supervisor; one of the geologists coordinates the survey. Each man has to be capable of independent work for long periods and must be temperamentally suited to these conditions.

About 120 to 150 men are needed as porters; each carries a maximum weight of no more than 40 lb. It may be decided to recruit 100 of them from the nearest centre of population (possibly as much as 300 miles away) and the remainder at the starting-point of the survey. By using ship and flying-boat they can be recruited, then assembled in an established field-base some 100 miles from the survey area and 250 miles from headquarters.

The base operational plan develops rapidly: men and stores will be flown to a lake near the area; further supplies will be by air-drop into a wide elongated valley which more or less bisects it. The way out from the area presents a problem, but it resolves itself into a fifty-mile trek to an existing drill supply-camp.

Once the party assembles at the lake and begins the field operation, the party leader coordinates the work and makes sure that all the preparations necessary to receive an air-drop are put in hand in good time. The day-to-day planning is entirely under the party leader and he must fit his work

programme into the framework of the overall operational plan, which is kept to throughout the survey unless changed by radio. Thus if communications break down the survey proceeds along the pre-determined path.

All supplies are ordered on the basis of three separate deliveries, one at the start and two air-drops, and they will be mainly of foodstuffs. The amounts will be quite large, as local supplies are non-existent in the rain-forest: for six weeks a party of this size will need about 25,000 to 30,000 lb weight of supplies.

Air-drops are expensive, but they are the cheapest way, if not the only way, of supplying stores to remote areas. They are organized by headquarters, and practically the whole of the pre-existing company organization in that part of the world is involved. Stores are usually assembled about two weeks in advance. They are generally available in the town where the headquarters are; otherwise they are imported by the company. They are divided into two major groups—items for free drop and items for parachute drop. The free-drop goods consist of flour and rice (basic food for local labour), while the parachute-drop goods consist of tinned foods, bottles, eggs, mail, fresh meat, etc. The rice and flour are packed in 40-lb bags, and then each 40-lb bag is loosely

Even now the most highly mechanized big-business expedition occasionally reverts to the saddle

hell photograph



(Right) Supplies being dropped from
a Catalina for an expedition in Papua.
(Below) The containers are here being
carried back to camp after collection



Both photographs by courtesy of the British Petroleum Company Ltd.





Shell photograph

All the comforts of home: supper-time in camp during an expedition in western Venezuela

packed in a gunny sack; in this way the inner bag bursts on impact and the grain collects in the outer bag. The breakable items are packed in cardboard cylinders called 'storpedos', capable of taking about 150 lb in weight—a convenient load for manual handling—and canvas or nylon parachutes are attached. The cargo is then shipped to the advance field-base; a 200-ton boat is used as a base ship and small craft are used to ferry loads to the Catalina flying-boat which is used for the air-drop. The flying-boat carries about 5000 lb of cargo on each trip, with a drop team of two or three Europeans and two to three labourers.

Radio communication with the survey party helps a lot at this stage, as weather reports can be given and abortive trips avoided when the forecast is bad. The use of radio is of great value to this type of operation. Lightweight dry-battery sets are available which can transmit and receive either direct with headquarters some 400 miles from the survey area, or via field-bases already established elsewhere by the company.

The average recovery on air-drops is about 95 per cent. On an epic occasion one storpedo plummeted to earth without the parachute opening. With grim forebodings the ground party approached the crumpled mess: sure enough, they disentangled the shattered remnants of six bottles of rum and Scotch and the remains

of scores of cigarettes. The party spent the next six weeks living healthy ascetic lives. But the lesson was learned, and all valuable cargo of that kind was henceforth distributed in the ratio of one bottle to a storpedo.

When the field work is finished, the native labour is sent home or given different employment. The geologists will take three to four months to complete writing their report, which involves the use of the drawing-office and typists.

The immediate cost of this type of survey, as it might take place in Papua, is in the region of £45,000, high because of the cost of labour and transport; but this is in no way a true figure, for without an existing site organization such a venture would be impossible to run: to build up any sort of reasonable base organization would involve many additional thousands of pounds.

The company's existing organization lies at the heart of the matter, and makes commercial exploration different from any other right from the start. But even in commerce not everything 'pre-exists', and the company's explorations can offer sober excitement. It is, after all, from this field that the widely used metaphor 'we have struck oil' has been borrowed, to express that victory over circumstances which is, perhaps, equivalent to raising a flag on the summit of a hitherto unclimbed peak.

64, Victoria Street

by REAR-ADMIRAL C. R. L. PARRY, C.B., D.S.O.

WHEN I became Secretary of the Trans-Antarctic Expedition early in March 1955 I took on the formidable task of running, from the London end, the general organization of an expedition which was to occupy sixteen men for nearly four years at a cost approaching £500,000.

My job was made all the pleasanter at the outset because I was working in close collaboration with Dr Fuchs (as he then was), and a more delightful personality it would be hard to find. I also had the backing of a very competent Committee of Management with Marshal of the Royal Air Force Sir John Slessor as Chairman. Their constant support and advice was of the greatest assistance, and gave me added confidence in the many unexpected situations with which I had to deal in the coming years.

It was at once clear that the planning of this the largest Commonwealth Polar expedition ever to have been mounted was attended by certain stimulating factors. In short, we had no accommodation, no men, other than the leader, no material, precious little ready cash and no precedent for an enterprise of such magnitude. This latter consideration was a fine form of mental gymnastics, since new problems arose with such frequency that I found attacks of mild insomnia quite an asset, and many were the notes of some forgotten essential that I made during the night.

The first thing I had to do was to find a convenient office at a reasonable figure, and anyone who has had to do this at short notice in a central part of London knows what it means. Eventually we obtained just what we wanted on the top floor of No. 64, Victoria Street, in Westminster, which was to be the headquarters of the expedition for very nearly four years.

Engaging suitable people for the office staff was the next move. Here we were singularly fortunate in getting Mrs Eleanor Honnywill as my Deputy; she remained with us the whole time, under circumstances that would often have daunted or defeated any ordinary individual. We generally had two or three other girls as well whose devotion to duty was beyond praise. They came and went as time passed but were always unbelievably cheerful in an office which I

estimated as having the highest level of noise and bustle of any in London.

Dr Fuchs now began to choose the expedition members to assist him in getting together stores, clothing, transport and all the other attendant items necessary for the venture. The time factor was of paramount importance for it had been decided that the party must leave England before the end of November in order to arrive in Antarctica early in 1956, and although it is generally accepted that at least a year is needed to prepare for an expedition of this size we had only nine months.

The selection of a suitable ship was another essential item. To ensure a passage through the ice-infested waters of the Weddell Sea required a vessel specially built for work in Polar regions, and such craft are few and far between. After some hard bargaining, reminiscent of Oriental bazaars, we obtained the Canadian British-built sealer *Theron*, and she and her crew proved well worth the daily rate of £275 that was finally agreed upon with her owners. It was a matter of gratification to the planners of the enterprise that, although the date for the departure of the advance party, November 14, was selected at a time in mid June when so much had still to be done and no ship yet chartered, the *Theron* sailed for Antarctica on the very day that had been chosen.

Meanwhile the Ross Sea Committee had been set up in New Zealand to organize and provide the party which was to be led by Sir Edmund Hillary; he was to set up a base in the Ross Dependency area, survey a suitable route towards the South Pole and lay dumps of fuel, stores, etc., for the use of Dr Fuchs on the latter part of his journey. To coordinate requirements and meet those concerned, Sir Miles Clifford of our committee went out to New Zealand and this visit proved of great value. The long line of communication between the two committees entailed over the succeeding years much correspondence by letter, cable and telephone, but the fact that it worked so well says a lot for the mutual agreeableness of all parties in the settling of the variant points of view which arose from time to time.

By August 1955, pressure in the office was really rising and matters previously resting quietly in the background forced themselves aggressively to the fore. I have not room to mention them all but some of the more important may be of interest. The need for funds was particularly urgent, for money is the life-blood of any expedition. The British Government had contributed £100,000 and a further £50,000 was received from New Zealand, while the Governments of Australia and South Africa also made welcome donations. But the bulk of the money had to be raised by the efforts of the expedition itself, partly in this country and partly in New Zealand. Fund-raising even for professionals is no easy business and for amateurs it is fraught with difficulty. However, an appeal was launched in fine style at a lunch given at the Savoy Hotel on November 4, with the then Prime Minister, Sir Anthony Eden, as Guest of Honour. Many thousands of letters were sent out to prospective supporters asking for their financial help, in particular to schools throughout the country, who responded nobly. As an added incentive the latter were able to subscribe towards the purchase of particular items connected with the venture, such as articles of clothing, equipment and so on,

as well as the husky dogs. When these had all gone we were even disposing of the travellers themselves! Constant information was later needed from Antarctica regarding the habits and performance of the dogs in order to satisfy the inquiries of those who had 'purchased' them. Unexpected discoveries about their sex often led to confusion and dismay among those whose minds had previously been firmly made up on this subject when making the original bargain.

Then came the question of insurance of men and stores. Having no reserve of capital we could not afford to run any financial risks, and as no expedition of this size had ever been mounted in this country the matter posed a major problem for the underwriters at Lloyds, who could not have been more helpful. At one time the suggested possible disasters needing cover seemed so numerous and intimidating that it appeared foolhardy even to start. There were intricacies of agreement on perils likely to occur to the ship, ranging from total loss to 'besetment' and 'encirclement', nicer points of what we had simply termed 'being stuck in the ice'. In the end everything was satisfactorily settled, and very instructive it was to those not previously acquainted with the hazards of Antarctic exploration.

ciated Newspapers Ltd



Publicity by broadcasting from the B.B.C., articles in newspapers and magazines, photographs, with day-to-day reports of the progress of the expedition, required much debate and discussion before agreement was reached and contracts signed. As so many of the contracts demanded exclusive material in return for contributions to our funds, we walked an uncertain tight-rope, with the chance of complaints from aggrieved editors on the one hand and the need for keeping their money on the other. The Press soon became, and were indeed encouraged to be, interested in the enterprise. To start with, all their enquiries came to me and this took up quite a bit of my spare time, usually after I had returned home. I got to know many of the reporters, both personally and also as voices over the telephone, and we got along together in a very friendly

The bigger the expedition, the more money it needs. (Opposite) Sir Anthony Eden, then Prime Minister, with Dr Fuchs at the lunch in 1955 to launch the appeal for money to finance the Trans-Antarctic Expedition. (Right) Huskies also helped to bring in funds: they were 'sold' to schools which thereafter took a continuing interest in their welfare and family life. (Below) The *Theron*, the expedition's first vessel, loading at Millwall Docks for her departure in November 1955 for Shackleton, the advance party's base



Central Press Photo

Sport and General





manner. Almost the only time I was really put out was just as the crossing was nearing its close, when I was rung up about 2.0 a.m. by a reporter who said he was new on the job and could I tell him all about it!

As further means of augmenting our funds we had the lower values of the stamps issued by the Falkland Islands overprinted for the expedition, and by the kindness of the Governor of the Islands we got a percentage of the face-value of those sold. This caused a wave of enthusiasm among philatelists all over the world, and we were inundated with requests for 'first-day covers' from the base to be set up at Shackleton in Antarctica. Methods of payment were often as unusual as the English of the writers, but instructions as to how the stamps were to be affixed and franked could not have been more explicit. In the end we had to put a limit on the number that could be accepted, otherwise the efforts of the whole party would have been devoted to sticking stamps on envelopes instead of setting up the base.

Numerous other unexpected details arose, were dealt with and then took their place in the long procession of the unforeseen; but in spite of all this the *Theron* was satisfactorily loaded in the Millwall Docks, and Dr Fuchs and his party had a grand send-off when they sailed down the Thames on the afternoon of Monday, November 14, 1955, for their destination in Antarctica some 10,000 miles away.

In the office we now had a short time to get our breath and square off unfinished business and tidy up the odds and ends of unwanted clothing, surplus stores, etc., which had been left behind, though we still had to send on at vast expense by air to Montevideo, there to meet the ship, important small items which had arrived too late to be embarked.

The besetment of the *Theron* in the ice for nearly a month was excellent publicity for the expedition, but it caused me some anxiety as the delay was shortening the time available for work at the base, in particular the completion of the hut in which the advance party would spend the winter, and also because of the possibility of the ship's fuel-supply running low. I had unsettling recollections in this respect of more than one occasion in the war when my destroyer returned to harbour with barely sufficient steam left to manoeuvre alongside the tanker before the

Magga Dan's captain being presented to Her Majesty The Queen when the ship was in London's Upper Pool



The main crossing party setting off in *Magga Dan* in November 1956. Obtaining ships and getting them safely to and from the Antarctic was a major part of the organization of the expedition

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supply of oil to the boilers ceased altogether. The *Theron*, however, reached Shackleton safely; the expedition stores were all disembarked, farewell said to the eight men who were to erect the base, and the ship left again just in time to avoid being held once more in the clutches of the ice.

Meanwhile preparations were steadily going ahead at home for the final departure of the main party in November 1956. Once again one of the more important requirements was to charter a suitable ship, since the *Theron* was too small to carry the additional equipment, such as an Otter aircraft, three more Sno-Cat vehicles, a large quantity of fuel, more food, and so on. We eventually got a fine new vessel, the *Magga Dan*, from Messrs Lauritzen, a well-known Danish firm which specialized in building ships for work in Polar waters. I went to Denmark to attend the sea trials of the *Magga Dan* and was greatly impressed by her staunch construction and excellent fittings.

No haggling over terms was considered by the owners and the daily rate of hire of £425 much alarmed our Treasurer, but by that time

the expedition was a firmly established news item in both Press and B.B.C., and although our finances were still well in the red they never reached the depths originally thought likely.

Dr Fuchs and those of his party not staying at Shackleton arrived back in the Thames on March 23, 1956. From now on life in the office became brisker than ever, for a great deal had yet to be done before the departure of the main party. During summer and early autumn we completed the selection of the remaining members of the team, got in stores and equipment, tested vehicles in cold chambers and saw to the many other matters which needed attention. Very thorough organization was essential, for it is a case of if you haven't got it you can't get it once the Antarctic winter has set in and all physical communication with the outside world has ceased.

Arrangements had been made for the *Magga Dan* to sail from Butler's Wharf just below Tower Bridge on November 15, 1956, with Dr Fuchs and the main crossing party aboard, together with all their additional stores and equipment.

Members of the International Geophysical Year team who were going to their base at Halley Bay, not far from Shackleton, were also taking passage together with their gear. The day before sailing, Her Majesty The Queen, who was patron of the expedition, graciously visited the *Magga Dan*, and it was a proud moment for all of us when the Royal Standard was broken at the mast-head as Her Majesty stepped aboard to walk round the ship.

After that we were again able to relax at No. 64, for it would be nearly eighteen months before we should see our friends back once more in England. Our next excitement was when the *Magga Dan* returned on March 13, 1957, bringing with her those of the advance party not required for the crossing, and a full cargo of whalebone meal from South Georgia, a fortunate bit of trading which helped considerably in reducing the expedition overdraft.

With the aid of the General Post Office and other good friends we were now able to establish direct telephonic communication with Shackleton, and I felt greatly indebted to them when I picked up the telephone either at home or in the office and was able to talk to members of the party so far away. This was also of special value to relatives and friends who could thus get in touch with the base from their own homes and firesides.

As our summer drew to a close so did the winter in Antarctica, where Dr Fuchs and his party were putting the final touches to their preparations for the crossing ahead of them. When at last we heard, on November 24, 1957, that the expedition had begun its long trek to Scott Base via the South Pole, we felt that all we had worked for during the past thirty-three months was about to be put to the final test.

A large notice board in the office carried the day-to-day progress of every vehicle and dog team and from this we were able to answer all questions about the progress of the crossing party. If the situation became confused, which happened from time to time, I was always pleased when the B.B.C. asked me to give a brief discourse on television to say how the expedition was getting on. This ensured an accurate and up-to-date report to the public, who had become very interested in the venture.

We were at this stage beginning to have some difficulty in getting radio messages from Dr Fuchs, and it was not easy to get news of his

progress owing to poor reception from the smaller sets that were being used, and also because the party, after a strenuous day's travelling and after servicing their vehicles at the end of it, naturally wanted as few interruptions to their short periods of rest as possible. We were, however, able to keep a pretty good chart of their activities as a result of information obtained from various sources in Antarctica.

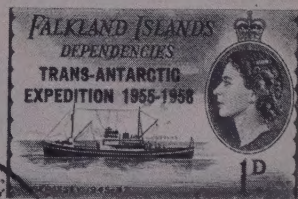
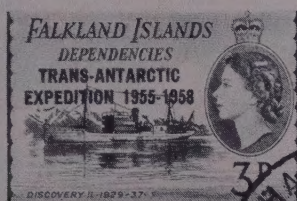
The coming flight of the Otter aircraft from the advanced base at South Ice to the New Zealand Scott Base was the next item to occupy our attention. A forced landing en route would be highly unpleasant and might need complicated rescue operations. However, on January 6, 1958, the aircraft took off with its crew of four, Squadron-Leader John Lewis in command, and after eleven hours' flying, covering 1430 miles, it arrived safely at Scott Base: no mean feat for a single-engined plane under the existing conditions.

Once the party were on the Polar plateau, travelling was easier. We were all delighted when they reached the South Pole on January 20, though very sorry for Dr Fuchs, confronted with a press conference as soon as he had arrived at the American base there. The main item of interest to the reporters was discussion on the supposed difference of opinion between Dr Fuchs and Sir Edmund Hillary regarding the advisability of the former continuing his journey in view of the fact that the winter was beginning to set in, with its likely hazards if he were delayed on the way to Scott Base. Dr Fuchs had never wavered in his determination to complete his journey according to plan, which caused some alarmist statements in ill-informed circles. It was said that extra reporters were ready to be flown to the Pole Station so that they could cover the foolhardy 'death march'! Despite these dismal forebodings the onward progress of the party towards their final goal was steady and reassuring, and it was amusing to see how the croakers who had derided the whole business soon became some of its most ardent supporters.

Then, on March 2, 1958, we heard by radio from New Zealand that Dr Fuchs and his men had arrived in triumph at Scott Base. They had travelled the 2158 miles from Shackleton in ninety-nine days, at an average of twenty-two miles a day, twenty-four hours less than the hundred days which Dr Fuchs had originally estimated would be necessary to complete the journey.



Trans-Antarctic Expedition



(Above) The proof of efficient organization at 64, Victoria Street: equipment being unloaded at Shackleton. (Right) A 'first-day cover' franked at Shackleton. The expedition were allowed a percentage on the stamps thus sold to keen stamp-collectors



Trans-Antarctic Expedition

Dr Fuchs and his party arrived at the South Pole on January 20, 1958, only to be met by, of all things, a full-scale press conference

Arrangements had been made at home to inform the appropriate authorities as soon as the expedition reached the end of its journey, and so it was possible for them to pass to Dr Fuchs at once the information that he was to be knighted for his splendid exploit, an award which caused us all immense pleasure.

Thereafter, our energies were chiefly devoted to getting the members of the party back home and dealing with the numerous receptions and festivities which were being organized in their honour both in New Zealand and at home. The Committee of Management decided that I should fly to Wellington to welcome Dr Fuchs and his companions, on their behalf, and to convey their good wishes to the Ross Sea Committee on the successful conclusion of the expedition. Since the whole venture had aroused great interest and enthusiasm among the public, both in this country and abroad, it was not surprising that they were greeted with rapture on their arrival at Southampton and later in London. So much had to be crowded into this one day that the attendant arrangements got steadily more numerous and more complex, and the pro-

gramme finally resembled the orders for a major Fleet Exercise. To crown it all the ship berthed three hours late. Even so, all went well and many were the happy reunions. The office at this point became a sort of warehouse for expedition equipment, and personal baggage and packing-cases were everywhere.

The following week was very hectic; Dr Fuchs was knighted at Buckingham Palace by Her Majesty The Queen, after which all the other members of the party were introduced to her and to the Duke of Edinburgh. The official receptions and other celebrations then followed.

A long list of lectures to be given by Sir Vivian and others of the party had already been drawn up and the first took place at the Royal Festival Hall in the presence of Her Majesty, the Duke of Edinburgh and Princess Margaret.

Financially we ended with a satisfactory surplus, a most unusual occurrence in Antarctic exploration, and this will be used for any further Polar enterprises which may be approved by a Committee appointed for this purpose.

The compilation of reports had to be tackled, a considerable task owing to the mass of data

The first complete crossing of the Antarctic continent took ninety-nine days from Shackleton to Scott Base, which was reached on March 2. But it had entailed more than three years' work

The Times





Central Press Photos

Sir Vivian Fuchs and Sir Edmund Hillary in New Zealand. Receptions, parties, lecture tours, a book and all the slogging work of official reports form the aftermath of a big expedition

that had been collected. It was a business not unnaturally regarded with some reluctance now that the excitement and adventure had come to an end. But Sir Vivian was in the worst plight of all, for besides competing with a host of requests for lectures, visits to firms who had supplied special equipment, opening fêtes, etc., he also had to write the official book telling the story of the expedition, and this had to be done in about eight weeks so that it would be ready for the Christmas market: an alarming job, but completed in time to everyone's satisfaction, especially those in charge of our finances.

In the early autumn the service members of the expedition began returning to their proper duties, to be followed not long after by most of their civilian comrades. By Christmas matters had greatly quietened down, and in February 1959 our activities and commitments had shrunk to such a degree that the few remaining members

of the staff moved to the Falkland Islands Dependencies Survey Bureau near by with a sad farewell to the office which had seen so much hard work, friendliness and animation over the past three-and-three-quarter years. There had of course been occasions when surprising and unexpected difficulties had arisen which had to be overcome, but at no time did we ever have anything but full confidence that the expedition would achieve its aim.

It is not easy to sum up in a few words the main reasons for the success of such an enterprise in a little-known and unkind part of the world, but I believe they can be assessed in the superb leadership in the field by Sir Vivian Fuchs, with the wholehearted and determined backing of his men; meticulous planning, organization and administration at home; and the enthusiastic support of British Industry, whose practical advice and assistance proved of the greatest possible value.